MASTER PATIENT INDEX/PATIENT DEMOGRAPHICS (MPI/PD)

TECHNICAL MANUAL

Version 1.0

April 1999

Revised December 2001

Department of Veterans Affairs
V*IST***A** System Design and Development

Preface

Master Patient Index/Patient Demographics (MPI/PD) was developed to initialize active patients to the Master Patient Index (MPI) and to establish the framework for the sharing of patient information between sites. During the process of initialization to the Master Patient Index, each active patient receives an Integration Control Number (ICN), a Coordinating Master of Record (CMOR), and a Treating Facility List of the sites where the patient is receiving care. Your site becomes part of the network of sites that share key demographic data for patients via HL7 messaging. Master Patient Index **V***IST***A** (MPI) and Patient Demographics (PD) are distributed and installed together. This manual covers the functionality in both packages.

MPI/PD was originally part of the Clinical Information Resource Network (CIRN) project. CIRN was to be a three phase project consisting of Phase 1: Pre Implementation (site clean-up), Phase 2: Master Patient Index/Patient Demographics (Master patient Index seeding for VHA-wide patient identification and patient demographics synchronization), and Phase 3: CIRN Clinical Repository. Master Patient Index/Patient Demographics is now a separate, independent package. Due to its beginnings, you will still notice references to CIRN such as shared name and number spaces, file names, package terminology, etc. The clinical repository is also a separate, independent project now called Health Data Repository.

Reference Material

MPI/PD manuals include:

CIRN Patient Demographics (CIRN-PD) Pre-Installation and Implementation Guide
Master Patient Index/Patient Demographics (MPI/PD) Installation and Implementation Guide
Master Patient Index/Patient Demographics (MPI/PD) Technical Manual,
Master Patient Index/Patient Demographics (MPI/PD) User Manual,
Master Patient Index/Patient Demographics (MPI/PD HL7 Interface Manual,

You should also become familiar with the Master Patient Index (MPI **V***IST***A**) documentation. MPI manuals include:

Master Patient Index (MPI) **V***IST***A** *HL7 Interface Specifications*
Master Patient Index (MPI) **V***IST***A** *User Manual*
Master Patient Index (MPI) **V***IST***A** *Technical Manual*
Master Patient Index (MPI) **V***IST***A** *Monograph*
Master Patient Index (MPI) **V***IST***A** *Release Notes*

One of the major pre-implementation tasks is the merging of duplicate patient records at a site. The *Duplicate Record Merge: Patient Merge (Patch XT*7.3*23) User Manual* is required for this task.

NOTE: Patches XT*7.3*49, RG*1*6, and RG*1*10 allow sites with MPI/PD to resolve duplicate records. If you do not have these patches installed, it is recommended that the option to merge patient records be placed out of order.

Because of the close interaction of MPI/PD with other packages, the user may find it helpful to review documentation for **V***IST***A** Health Level 7 (HL7) V. 1.6, updates to the Patient Information Management System (PIMS) V. 5.3 Admission-Discharge-and Transfer (ADT) module documentation, and Run Time Library V. 2.1.

Master Patient Index/Patient Demographics (MPI/PD) Technical Manual Revision 2 December 2001

The December 2001 revision of this manual includes an explanation of the Remote Patient Data Query Menu introduced in RG*1*23. This option is found on the MPI/PD Patient Admin Coordinator Menu and as a new action on the MPI/PD Exception Handling option.

The patch summary reflects changes made to date in the RG namespace in support of the Master Patient Index/Patient Demographics package. Changes that fall within the MPIF (Master patient Index or DG (Registration) namespaces may be found in the appropriate package manual. The following table shows which patches are applicable to MPI/PD.

Patch	Brief Summary	Status
RG*1*2	Enhances the CMOR Score Status option [RGCIRN CMOR STATUS]	Released 10/12/99
DG*5.3*240	Treating Facility/Patient Merge Name	Released 12/10/99
RG*1*1	Exception Message Enhancements	Released 1/20/00
MPIF*1*1	Exception Handling, Local ICNs, and changes the real-time connection with the MPI to no longer give a list of potential matches during the three PIMS options.	Released 3/29/00
MPIF*1*2	Protocol update for HL*1.6*57 & HL*1.6*54	Released 3/29/00
MPIF*1*3	Direct Connect/Inactivate ICN/Load to MPI/Local ICN	Released 7/7/00
RG*1*3	Exception Handling option	Released 5/16/00
DG*5.3*261	CPRS Remote Data Views	Released 5/12/00
RG*1*4	CPRS Remote Data Views	Released 7/20/00
DG*5.3*255	Patient Data Review changes	Released 6/19/00
MPIF*1*4	MPI Direct Connect link to support DNS	Released 7/7/00
MPIF*1*5	PROTOCOL CHANGES for subscriber multiple field	Released 7/7/00
MPIF*1*6	CMOR Change Request	Released 7/7/00
MPIF*1*7	ACK on for MPIF ICN-A02 SERVER and Local/Missing Job Fix	Released 8/1/00
DG*5.3*295	Stop Auto-updating of Addresses	Released 8/24/00
RG*1*7	Stop Auto-updating of Addresses	Released 8/24/00

DG*5.3*316	Treating Facility List in Support of Facility Integrations	Released 9/5/00
RG*1*5	Facility Integration	Released 9/5/00
DG*5.3*307	CMOR History field/Exception Messages /Display Only Query on Patient Data Review	Released 10/2/00
RG*1*8	Sending Facility Format/Exception Messages	Released 10/2/00
XT*7.3*49	CIRN Aware Duplicate Record Merge	Released 10/17/00
RG*1*6	CIRN Aware Duplicate Record Merge	Released 10/17/00
RG*1*9	Facility Integration Follow-up	Released 11/7/00
DG*5.3*329	ICN History Correction	Released 11/16/00
RG*1*11	MPI/PD Exception Message Screening	Released 11/21/00
MPIF*1*8	ACK Timeout, Potential Match Display, Display Only Query, and ACKs	Released 11/28/00
RG*1*10	Duplicate Record Merge fix	Released 12/11/00
MPIF*1*12	Corrects wrong CMOR Assignment	Released 12/12/00
MPIF*1*10	Stops patients with Potential Match exceptions from going up in the Local/Missing ICN Resolution job	Released 1/3/01
RG*1*14	MPI/PD-CPRS Remote Data Views Correction	Released 2/27/01
RG*1*15	MPI/PD-CPRS Remote Data Views Correction	Released 2/27/01
DG*5.3*333	Patient Data Review Enhancements	Released 3/30/01
RG*1*12	Exception Handling Enhancements	Released 3/30/01
RG*1*16	MPI/PD Status Display option	Released 3/30/01
MPIF*1*13	Display Query and SPI Plus Mail Group Update	Released 5/4/01
RG*1*13	MPI Exception Handler	Released 5/14/01
RG*1*18	Remove references to Extensible Editor	Released 6/5/01
MPIF*1*9	Automatic Inactivation of ZZ'd Patients from MPI	Released 6/7/01
DG*5.3*384	Patient Data review – Name Comparison	Released 6/7/01
MPIF*1*16	CMOR Not Updating	Released 6/15/01
RG*1*17	Invalid Date last Treated Exception Messages & HL7 Message Routing Enhancement	Released 6/19/01
MPIF*1*15	Local/Missing ICN Resolution Job	Released 7/17/01
DG*5.3*392	Patient Select Criteria for CPRS Remote Data Views	Released 8/14/01
MPIF*1*18	Locks on MPI node during Change of CMOR	Released 8/21/01
RG*1*22	Generic VA HL Link	Released 10/1/01
RGED*2.6*1	Extensible Editor – Elimination of Package	Released 10/2/01
RG*1*19	MPI/PD Update Menu Structure	Released 10/11/01

MPIF*1*19	Inactivate Patient Comparing IEN To Station Number	Released 10/25/01
RG*1*21	Add/Edit Point of Contat & MPI/PD HL7 Diagnostic Menu	Released 11/16/01
MPIF*1*11	CMOR Request Fixes	Released 11/27/01
DG*5.3*414	Patient MPI/PD Data Inquiry Retrieval	Released 12/01
RG*1*23	Remote Data Query Features	Released 12/01

Table of Contents

Introduction 1
Background 1
Principals and Objectives 1
Functionality 1
Patient Record Integration 1
Distinguishing MPI (Austin) from MPI (VISTA) 1
The Master Patient Index Overview 2
Coordinating Master of Record 2
Other Facility Categories 3
Treating Facilities 3
Subscribers 3
Descriptive Subscriptions 3
Effects of Patient Registration 3
Implementation and Maintenance 5
Name and Number Spaces 5
External Relations 5
Legal Requirements 5
Capacity Management and System Diagnostics 6
Hardware Requirements 6
Space requirements 7
Auditing 7
Global Information 8
Global configuration 8
Journaling 8
Routine Mapping 8
HL7 Management 9
Bulletins 9
Exception Handling Messages 10
MPI/PD Mail Groups 10
Site Parameters 11
Menu Options for IRM 13
MPI/PD Event Queue Manager ... [RGEQ MGR] 13
Coordinating Master of Record (CMOR) Score Menu [RG CMOR MAIN] 14
Options 15
Patient File Initialization to MPI [MPIFINIT DPT TO MPI] 19
MPI/PD Status Display [RG STATUS DISPLAY] 21
Files 23
Number Space 23
File List 23
File Information 25
Routines 27
CIRN Patient Demographics 27
CIRN Messaging Support 28
Master Patient Index V*IST*A 28
Exported Options 31
Master Menu: 31
Menu Assignment 32
Standalone Options 33

Stop/Send/Suspend MPI/PD Messages [RG PROCESS CONTROL] 33
MPI/PD HL7 Exception Notifier [RG EXCEPTION NOTIFIER] 33
MPI/PD Exception Purge [RG EXCEPTION PURGE] 33
Local/Missing ICN Resolution Background Job [MPIF LOC/MIS ICN RES] 33
MPI/PD HL7 Diagnostic Menu [RGMT DIAG MGR] 34
Archiving and Purging 37
Archiving 37
Purging 37
Callable Routines/Entry Points/ Application Programmer Interfaces (APIs) 39
Messaging Support 39
Exception Handling 39
External Interfaces 43
External Relations 45
Integration Agreements 45
Internal Relations 49
Package-wide Variables 49
Software Product Security 51
MPI/PD Mail Groups 51
Bulletins 51
Remote systems 51
Archiving/Purging 52
Contingency Planning 52
Stop/Send/Suspend MPI/PD Messages [RG PROCESS CONTROL] 52
Interfacing 53
Electronic Signatures 53
Menus 53
Security Keys 53
Files with Security Access 53
References 53
Official Policies 54
How to Generate Online Documentation 55
Retrieving Online Help Using Question Marks 55
Print Options File 55
List File Attributes 55
Inquire to Option File 56
XINDEX 56
Glossary 57
Appendix A - MPI/PD Business Rules 63
Appendix B - MPI/PD Process Diagrams 65
Data flow diagram of the Registration Process (includes MPI/PD enhancement): 65
Data flow diagram of the A04 Broadcast Process: 67
Data flow diagram of the A08 Broadcast Process: 68
Data flow diagram of the MPI/PD VTQ Query process: 69
Appendix C - TCP/IP Set-up 71
UCX Setup for DSM/VMS sites 71
Single-Threaded Listeners 73
Logical Link Setup for Single-Threaded Listener 73
How to Start and Stop the Single-Threaded Listener 74
Multi-Threaded Listener Setup: Caché on NT 74
How to Start and Stop the Multi-Threaded Listener 74
Appendix D - MPI/PD Event Queue 75

Introduction 75
MPI/PD Event Queue Structure 75
Managing the MPI/PD Event Queue 76
Starting the MPI/PD Event Queue 76
Other system functions that may effect the MPI/PD Event Queue 76
Stopping the MPI/PD Event Queue 77
Appendix E - Exception Messages and Bulletins 79
Bulletins 79
Patient Related Bulletins 79
Exception Messages 83
MPI/PD Exception Handling option 83
Resolving the Exceptions 92
Exception Messages not Included on the Exception Handling Option 96
Exception Messages for MPIF Exceptions Handler 97
Index 101

Introduction

Background

The Veterans Health Administration (VHA) is in the process of restructuring its health care delivery system, moving from a model focused on independent medical facilities to a model based on Veteran Integrated Service Networks (VISNs). Corresponding changes in requirements for VISN-wide clinical data services have resulted in a need for this package.

Principals and Objectives

The objectives of the project are to create an index that uniquely identifies each active patient treated by the Veterans Administration and to identify the sites where a patient is receiving care. This is crucial to the sharing of patient information across sites.

Functionality

The initial synchronization of key Patient file (#2) information (for active, shared patients) with the Master Patient Index and with the patient's treating facilities is an important step in the implementation of the software. The initialization process transfers the Integration Control Number (ICN), Coordinating Master of Record (CMOR), and Treating Facility list for each patient to the patient's record in the Veterans Health Information Systems and Technology Architecture (**V***IST***A**) Patient file at all sites where the patient has been treated.

Patient Record Integration

The patient record integration activities are responsible for identifying and maintaining information needed to successfully share patient data between sites. Whenever key patient demographic information for a shared patient changes, a message with the changes is sent to the patient's CMOR where the changes are accepted or rejected. If accepted, the updates are broadcast to all treating facilities for that patient.

*Distinguishing MPI (Austin) from MPI (***V***IST***A***)*

MPI (Austin) refers to the actual index located at the Austin Automation Center (AAC). MPI (**V***IST***A**) refers to the software that resides in **V***IST***A** and sends patient data to the MPI (Austin) and to sites where a patient has been seen. These terms [i.e., MPI (Austin) and MPI (**V***IST***A**)] are used throughout this manual only when it is not obvious which component of the MPI the documentation is referring to.

The Master Patient Index Overview

The Master Patient Index (MPI Austin assigns and maintains unique patient identifiers, known as integration control numbers (ICNs) that link patients to their records across VHA systems. It also contains the Coordinating Master of Record (CMOR), and a current list of treating facilities subscribing to a patient's data.

When a patient is first seen at a site for care (the site has not previously treated the patient) or the patient did not get an ICN during the initialization phase, a real-time query is generated to the MPI when using the Register a Patient or Load/Edit Patient Data or 10-10T Registration options. If the patient is not known to the MPI, the patient's identifying information —name, SSN (unless pseudo or not available), date of birth, mother's maiden name, place of birth state and place of birth city— is passed to the MPI. If the patient is not already known to the MPI, the MPI assigns an integration control number (ICN) and assigns the requesting site as the CMOR. If the patient is already known to the MPI, the MPI returns the patient's ICN, CMOR, and the list of known treating facilities. The requesting site sends a message to the CMOR to be added as a treating facility and the updated treating facility list is sent to all treating facilities and the MPI.

Each site will have a block of local ICNs assigned for automatic use in the event that the MPI cannot be reached. When local ICNs are assigned to patients, background processing ensures that they are processed against the MPI as soon as possible. It will also process any missing ICNs for new patients added to the Patient file by means other than Load/Edit and Registration and 10-10T Registration. If the patient is not known to the MPI (new patient), the MPI will assign a new ICN and the site will be the CMOR. If the patient is already known to the MPI (exact match), the MPI will return the ICN, CMOR, and list of treating facilities. If the MPI finds more than one potential match, a local ICN is assigned and an exception is logged for human resolution using the MPI/PD Exception Handling option. The locally assigned ICN will be stored as part of the patient record in the ICN History.

Coordinating Master of Record

The Coordinating Master of Record (CMOR) is the designated "owner" of the patient's descriptive and clinical data. A patient will have only one CMOR at a time. The designation as the CMOR for a patient does not provide "workload credit" or any other distinction.

Several new fields having to do with the CMOR have been added to the Patient file (#2): Coordinating Master of Record (#991.03), CMOR Activity Score (#991.06), and Score Calculation Date (#991.07). These fields are populated by the system.

During the Pre-Implementation phase, a CMOR score based on activity (Current FY, FY-1, FY-2) was calculated for the active patients in your Patient file. The CMOR score indicates to the Master Patient Index (MPI) which patients in your Patient file are active. During initialization of your database with the MPI, the first site at which the MPI encounters a patient will be assigned as the CMOR. Following the initialization with the MPI, your site will run an option that identifies the shared patients for which you are **not** the CMOR, compares the CMOR scores, and reassigns the CMOR if that action is appropriate.

Other Facility Categories

A facility's relationship to the patient determines what information it receives and sends. MPI/PD maintains this information to ensure proper routing of patient data.

Treating Facilities

Any facility where a patient registers for care (regardless of VISN) is placed on the Treating Facility List. This list is part of the patient descriptive data that is synchronized.

Changes to certain patient descriptive data that are made at a treating facility trigger a message to the CMOR. Depending on the data type, all sites (including the CMOR) may be updated automatically; the CMOR accepts or rejects the changes and may broadcast an update message to all treating facilities, subscribers, and the MPI.

Subscribers

A patient's subscription list is maintained and synchronized at each site where the patient is known. A site "subscribes" in order to receive a patient's descriptive data from other sites. Sites can only activate/deactivate subscriptions themselves except in cases of automatic subscription (as a treating facility upon registration of a patient known elsewhere). When patient messages are generated at a site, they are routed to the subscribers on the list for that patient. The subscription mechanism can also be used to maintain VISN-wide aggregates, longitudinal research databases, etc. The package provides a category for clinical subscribers who would receive both descriptive and clinical updates. This category is reserved for future use.

The subscription list differs from the Treating Facility list in that subscribers do not need to be Treating Facilities. Subscribers that are not also designated as treating facilities may deactivate their subscription by entering an expiration date. For treating facilities, a subscription with an infinite expiration date is implied. They may not deactivate from descriptive subscriptions.

Descriptive Subscriptions

Descriptive subscriptions receive changes to patient demographic information including CMOR changes and updates to the subscription and treating facilities lists. Descriptive subscribers can request a change in status if they wish to also receive clinical repository data. The descriptive subscription list for a patient is synchronized across subscribing sites.

Effects of Patient Registration

When a shared patient registers at your facility, a registration message is sent to the CMOR and clinical and descriptive subscriptions for that patient are created for your site. The CMOR then broadcasts a message to update the lists of other subscribers.

Implementation and Maintenance

Name and Number Spaces

The MPI/PD package namespace is RG, excluding RGED (reserved for Extensible Editor) and RGUT (reserved for Run Time Library) and the file range is 990-995 and 997-999.99. (File range 996-996.99 is reserved for Extensible Editor.)

External Relations

The following packages (fully patched) must be installed at the site:

CAUTION!!
DO NOT INSTALL HL*1.6*39 in any TEST account!
If you install this patch in your test account, you will link your test account to all the other production accounts. Since there are similarities (e.g., patient names/data) in test and production, it would not be good for data from the test account to be transmitted to the production account at another site.

Application	Version # and Patches
CIRN	Version 0.5 fully patched
Scheduling	Version 5.3 SD*5.3*185
PIMS	Version 5.3 fully patched
HL7	Version 1.6 fully patched **NOTE:** Place HL*1.6*39 in Production account only
MailMan	Version 7.1 XM*DBA*115
KERNEL	Version 8 fully patched
KERNEL Toolkit	Version 7.3 fully patched
VA FileMan	Version 22 fully patched
Run Time Library	Version 2.1
Pharmacy	If running Computerized Patient Record System (CPRS), fully patched version of Outpatient Pharmacy V. 7.0, and Inpatient V. 5.0.

NOTE: If you are a Cache site and are planning to use a multi-threaded listener (which is recommended), you will need patch XU*8.0*78.

Legal Requirements

This package does not impose any additional legal requirements on the user. All users are reminded that many of the reports generated by this package contain confidential patient information and should be treated accordingly.

Capacity Management and System Diagnostics

The Capacity Management team will work closely with sites to determine whether the workload associated with MPI/PD will affect the system negatively. They have also developed a number of tools that monitor the system to provide benchmarking data for further study and process improvement. These may include the following:

- Statistical Analysis of Global Growth (SAGG) - focuses on package-specific impact on data storage, monitors global and file usage.
- Resource Usage Monitor (RUM) - measures resource consumption by package.
- VAX Performance Analyzer (VPM) - monitors system and stores a key subset of data associated with configuration, database activity, response time, central processing unit (CPU), memory, and Input/Output (I/O) utilization.

The following system diagnostics should also be performed:
Transmission Control Protocol/Internet Protocol (TCP/IP) Testing: For the Digital Equipment Corporation (DEC) Alpha sites which were not old 486 sites, test the TCP/IP connection via a "PING" function or other method. This insures that the software and hardware mechanisms associated with this communications protocol are prepared to function. It is also a preventive diagnostic for communications with the MPI Austin.

Hardware Requirements

MPI/PD is designed to run on standard or upgraded Alpha AXP clusters with Virtual Memory System (VMS) or on New Technology (NT) and Open M. TCP/IP setups will have to be in place (see **V***IST***A** Health Level seven (HL7) Site Manager and Developer manual at http://vista.med.va.gov/VistA_Lib/Infrastructure/Health_Level_7_(HL7)/hl71_6p56_p66.pdf.

MPI/PD and MPI **V***IST***A** use TCP/IP as the communications protocol for transmitting and receiving patient information. Use existing system tools for fine-tuning your TCP/IP capabilities.

Space requirements

If using TCP/IP, outgoing messages will consume approximately 10-20 k/message Mb of space in the ^HL globals for 40,000-50,000 active patients. Incoming messages will consume approximately 15-25 Mb of space.

If not using TCP/IP, outgoing messages consume approximately 22-25 k/message Mb of space in the ^HL globals for 40,000-50,000 active patients. Incoming messages consume approximately 35-40 Mb of space.

Auditing

During the normal daily operations of MPI/PD, it is possible that these fields may be updated by MPI/PD HL7 Messaging. MPI/PD enables auditing for the following fields for monitoring. A post installation step turns auditing on for the NAME (#.01) field also. It is very important that the auditing of these fields (especially NAME) remains set to YES, ALWAYS.

A ** denotes a key field (in addition to Name and the fields mentioned above) that will be synchronized across sites. The list of key fields is subject to change.

**Sex
**Date of Birth
Marital Status
Religious Preference
**Social Security Number
Street Address [Line 1]
Zip+4
Street Address [Line 2]
Street Address [Line 3]
City
State
County
Phone Number [Residence]
Phone Number [Work]
K-Name of Primary NOK
K-Phone Number
**Mother's Maiden Name
Service Connected?
Service Connected Percentage
Employment Status
Period of Service
Date of Death
Type
Veteran (y/n)?

The DG Security Log file (#38.1), Field #2 Security Level is also monitored for changes to patient sensitivity.

Global Information

Globals included in the installation are shown in the File List.

The following globals need to be placed on the system:

^RG* (^RGSITE, ^RGHL7 ^RGEQASN, ^RGEQEXC, ^RGSTAT, ^RGEQ) - minimal anticipated growth
^MPIF - no anticipated growth

You will need to reboot your system for translations to take effect.
Check disk space for 150 Mb of available space for growth in ^HL Based on Test Site information, projected growth of the ^DIA (audit global) is 400-500Mb over a one year period.

Global configuration

Alpha Cluster(DSM): The globals should be placed and protected on the proper volume set using the %GLOMAN utility.

Open M: Use the GUI Global utility to add and place the globals. Default global attributes should be used.

	System Owner	**World**	**Group**	**UCI/USER NET**
Alpha (DSM)	RWP	RWP	RWP	RWP
Open M	RWD	R	R	RWD

Journaling

Journaling should be off during the installation but should be enabled afterwards for ^RG*.

NOTE: HL*1.6*52 has recommendations for HL7 global journaling that should be reviewed. The MPI/PD and MPI packages both heavily use HL7 messaging.

Routine Mapping

Several templates associated with the Patient file (#2) are compiled during DG*5.3*231 portion of the MPI/PD installation. If any of the following routine namespaces are currently mapped at your site, they should be unmapped prior to starting the installation. If your site cannot map/unmap using the * wildcard, a complete list of the mapped/unmapped routines can be found in Appendix I of the *Master Patient Index/Patient Demographics (MPI/PD) Installation and Implementation Guide*.

A1CKC*	DGPTX1*
DGRPTX*	DGRPXC*
DGRPXCR*	DGRPXX7*
DVBAXA*	DVBHCE*
DVBHCG*	GMRDSTR*

GMRDSTV*	IBXBCR2*
IBXSC1*	IBXSC2*
MCARORB*	SDM1T*
TIUPREL*	

HL7 Management

MPI/PD makes heavy use of HL7 messaging. The HL7 globals should be checked for sufficient room for growth. In addition, check to see if the HL7 patch, HL*1.6*39, properly brought in all of the sites HL Logical Link file (#870) and set the Queue Size field (#21) to ten. Also each site that is running UCX (non-Caché) will need to change their sites (VA<your site's three letter abbreviation> TCP) HL Lower Level Protocol Parameter file (#869.2) entry, field TCP/IP Service Type (#400.03) to M for Multi Listener Server. See patch HL*1.6*19 for further instructions.

Bulletins

RG CIRN DEMOGRAPHIC ISSUES: This bulletin controls the sending of the following patient related and Master File update bulletins.

Patient Related Bulletin	**Cause**	**Action to take**
MISSING DATA	Name, Date of Birth (DOB), or Integration Control Number (ICN) field is missing or null in the incoming message.	Contact National **V***IST***A** Support (NVS) Help Desk for assistance.
REMOTE SENSITIVITY INDICATED	Patient is marked as sensitive at the sending site but not at receiving site.	No action: message is informational
REMOTE DATE OF DEATH INDICATED	Patient has a date of death entered from the sending site but not at the receiving site.	No action: message is informational

The Master File Update bulletins going to MPI Austin differ from the patient related bulletins in that the data being passed is different.

Exception Handling Messages

The exception handler generates messages to alert the user of problems that occur in generating or processing HL7 messages. See the Exception Handling document on the MPI/PD web site for examples of messages that may be received during the implementation phase and how to resolve the problems.

MPI/PD Mail Groups

Mailgroup	Suggested Coordinator	Suggested Members
RG CIRN DEMOGRAPHIC ISSUES	Health Administration Service (HAS)/MPI/PD Coordinator	Personnel that deal with patient data.
RG CIRN HL7 PROBLEMS	Person who will monitor MPI/PD HL7 problems.	Person who will monitor MPI/PD HL7 problems.
MPIF EXCEPTIONS	Messages are sent to the MPI Exception Handler on the Austin MPI.	Messages are sent to the MPI Exception Handler on the Austin MPI.
MPIF CMOR REQUEST	Person who will monitor CMOR Change Requests.	Personnel that will process CMOR Change Requests.
HL7 SITE POC (on FORUM)	Person who will monitor MPI/PD HL7 problems.	Person who will monitor MPI/PD HL7 problems.

Site Parameters

1. Set Site Parameters

While all of the following parameters are important and should be reviewed with your HAS/MPI/PD Coordinator, in order to proceed with your post installation you MUST use the RG Process control option to set MPI/PD messaging to SEND.

- **Site Parameters Edit for CMOR [MPIF SITE PARAMETER]** found on the Patient Admin Coordinator Menu.

Your site can select whether requests for a change to a patient's CMOR will be processed automatically or placed in a review file for manual processing. If you select MANUAL, mail messages will be sent to the mail group entered in "New Request Mailgroup" whenever change requests are received. You do not get a message if you select AUTOMATIC.

```
Type of Processing: MANUAL// ??
    Based on this field setting, any CMOR change request received
    from another station can either be manually reviewed or automatically
    approved.
    Choose from:
      0        MANUAL
      1        AUTOMATIC
Type of Processing: MANUAL// <RET>
New Request Mailgroup: MPIF CMOR REQUEST// ??
    If the CMOR Request Change parameter is set to manual, new CMOR change
    requests received will notify the mailgroup entered in this field. This
    gives a means of prompting someone to review the new request.
New Request Mailgroup: MPIF CMOR REQUEST // <RET>
```

- **HL7 Application Parameters file**

Check that the correct Station Number is entered in the Facility Name field (#3) of the HL7 Application Parameter file (#771). Local modifications to your Institution file may conflict with MPI/PD installation set-up.

```
FileMan print

D P^DI

HL7 APPLICATION PARAMETER LIST                MAR 15,2000  10:45    PAGE 1
NAME             FACILITY NAME
** Note this will show all entries.
MPIF A29 SERVER  679  <<This should be YOUR station number>>
MPIF A30 SERVER  679
MPIF CMOR COMP   679
MPIF CMOR RSLT   679
MPIF LOC/MIS     679
MPIF MPI         679
MPIF-STARTUP     679
RG CIRN          679
RG SUBSCRIPTION  679
```

```
VAFC PIMS        679
RG CIRN ADT        Should NOT be populated!
```

- **Stop/Send/Suspend MPI/PD Messages [RG PROCESS CONTROL]**

  The Stop/Send/Suspend MPI/PD Messages Processing option is provided as a standalone option. It is **NOT** to be attached to any menu. This option allows IRM to set the message activity state (Stop/Send/Suspend). This option is used to edit the Stop MPI/PD Messaging field (#16) in the CIRN Site Parameter file (#991.8), to STOP/SEND/SUSPEND MPI/PD messages.

  You must be in SEND mode to begin the MPI Initialization phase.

  STOP - should be used only to totally shutdown HL7 V2.3 and MPI/PD messages. It should only be used under the direction of Software Design & Development.

  SEND - normal operating mode.

  SUSPEND - should be used in an emergency situation to suspend HL7 V2.3 and MPI/PD messages if the volume of messages is affecting system performance. Software Design & Development should also be called in this situation.

```
D ^XUP
Setting up programmer environment
Terminal Type set to: C-VT320
Select OPTION NAME: RG PROCESS CONTROL          STOP/SEND/SUSPEND MPI/PD
messages
STOP MPI/PD MESSAGING: STOP MESSAGES// SEND
    In sync with MAS parameter.
```

NOTE: If not in sync with the MAS Parameter, you will need to contact your MAS Coordinator to get the Send PIMS HL7 V2.3 Messages field (in the MAS Parameters file(#43)) set to SEND also. If the two parameters are not in sync, the implementation process can not continue.

Menu Options for IRM

NOTE: RG*1*19 made extensive menu changes including the removal of obsolete menus and options, moved some options to different menus, added new options, and changed user visible references from CIRN to MPI/PD except in file names. CIRN Master of Record (CMOR) is now Coordinating Master of Record.

The MPI/PD IRM Menu is designed for use by IRM personnel. This section provides guidance in the use of the options.

IRM MPI/PD IRM Menu ...[RG IRM MENU]
EQ MPI/PD Event Queue Manager ...[RGEQ MGR]
Start MPI/PD Event Queue [RGEQ START]
Halt MPI/PD Event Queue [RGEQ STOP]
Coordinating Master of Record (CMOR) Score Menu ...[RG CMOR MAIN]
BGN Start/Restart CMOR Score Calculation [RG CMOR START]
HLT Stop CMOR Score Calculation [RG CMOR STOP]
IND Calculate Individual Patient CMOR Score [RG CMOR INDIV]
CSS CMOR Score Calculation Status [RG CMOR STATUS]
DRS Duplicate Record by CMOR Score [RG CMOR DUP SCORES]
STAT Duplicate Record Statistics [RG CMOR DUP STATS]
Patient File Initialization to MPI [MPIFINIT DPT TO MPI]
SD MPI/PD Status Display [RG STATUS DISPLAY]

MPI/PD Event Queue Manager ... [RGEQ MGR]

Start MPI/PD Event Queue [RGEQ START]
Halt MPI/PD Event Queue [RGEQ STOP]

The MPI/PD Event Queue must be started and running for Coordinating Master Of Record Requests messaging updates to occur.

Start MPI/PD Event Queue [RGEQ START]

This option is used to restart all the event queues at one time. If a single event queue has been stopped independently from the others, you will need to use the Halt MPI/PD Event Queue option to restart it.

For example: There are three queues,
MPIF CMOR REQUEST
MPIF CMOR RESULT
SCN_REQ

If the MPIF CMOR RESULT queue has been individually halted prior to the entire MPI/PD event queue being stopped, the Start MPI/PD Event Queue option will only restart the MPIF CMOR REQUEST and SCN_REQ queues. The Halt MPI/PD Event Queue option must be used to restart the MPI CMOR RESULT queue.

```
Select MPI/PD Event Queue Manager Option: Start MPI/PD Event Queue
Are you sure you want to start the MPI/PD processor? NO// YES ... done.
```

Halt MPI/PD Event Queue [RGEQ STOP]

This option allows you to stop event queue processing for the entire MPI/PD process or for a specific event type and to restart processing for a specific event.

Halt Processing for MPI/PD

```
Select MPI/PD Event Queue Manager Option: Halt MPI/PD Event Queue
Do you want to stop ALL MPI/PD processing? NO// YES ... Done
```

Halt Processing for a Specific Event

```
Select MPI/PD Event Queue Manager Option: Halt MPI/PD Event Queue
Do you want to stop ALL MPI/PD processing? NO// <RET>
Do you want to ENABLE/DISABLE a particular data class? NO// y  YES
Select MPI/PD Data Class: ??

Choose from:
  MPIF CMOR REQUEST
  MPIF CMOR RESULT
  SCN_REQ

Select MPI/PD Data Class: MPIF CMOR RESULT

NOTE: This class is currently enabled
  ...Do you want to DISABLE? NO// y  YES ...Done.
```

Coordinating Master of Record (CMOR) Score Menu [RG CMOR MAIN]

The CMOR (Coordinating Master of Record) is the designated "owner" of the patient's demographic and clinical data and plays a major role in the distribution of demographic and clinical data to other sites. The CMOR Activity Score indicates to the MPI which patients in your Patient file are active. During initialization of your database with the MPI, the first site at which the MPI encounters a patient will be assigned as the CMOR. Following the initialization with the MPI, your site will run an option that identifies the shared patients for which you are **not** the CMOR. An option is provided to send messages to the CMOR sites in order to compare the CMOR Activity Scores and reassign the CMOR if that action appears to be appropriate.

The score is stored in the CMOR Activity Score field (#991.06) and the date it was calculated is entered into the Score Calculation Date field (#991.07) of the Patient file (#2).

The Start/Restart CMOR Score Calculation option calculates a CMOR Activity Score for the active patients in your Patient file (#2) based on activity (Current FY, FY-1, FY-2). In essence, the software assigns "points" for specific activity. The following table lists the Patient Activity Indices used along with the associated points tallied for each match.

PATIENT ACTIVITY INDICES	TIMEFRAME	CMOR POINTS
Outpatient Visits	Current FY	30 points
	FY (-1)	20 points
	FY (-2)	10 points
Appointments with Stop Code 323 (Primary Care)	Any Appts	50 (additional) points
Admissions	Current FY	50 points
	FY (-1)	40 points
	FY (-2)	30 points
Current (active) / New Prescriptions		20 points
Lab Tests	Last 12 months	10 points
X Rays	Last 12 months	20 points
Fee Basis	FEE Authorization (To Date) on or after 1/1/96	0

Patients with no activity for this timeframe (current FY and 2 FY prior) are excluded. Patients with a pseudo SSN and deceased patients will have a CMOR score calculated if they have patient activity within the timeframe. FEE BASIS patients with no activity but who have an Authorization Date after 10/1/96 are given a score of zero (0) to ensure that they are added to the MPI. Patients with a pseudo SSN and deceased patients will have a CMOR score calculated if they have patient activity within the timeframe.

Options

When you select Coordinating Master of Record (CMOR) Score Menu, you will first see a report of your current CMOR score status:

```
Select MPI/PD IRM Menu Option:Coordinating Master of Record (CMOR) Score Menu

The CMOR Activity Score Generator

..one moment please...

There are 742 records in your PATIENT file.
The last record number is 7169974.
Last Patient Processed: TESTING,FIRST MIDDLE JR MD   SSN: 192001010
[RECORD# 7
169973]

The CMOR score initialization last started on Sep 05, 2001 11:52:25 am.
199 patient records have been processed.
Status: SUCCESSFULLY COMPLETED on Sep 05, 2001 11:52:54 am.
CMOR Score Count: 269

BGN   Start/Restart CMOR Score Calculation [RG CMOR START]
HLT   Stop CMOR Score Calculation [RG CMOR STOP]
IND   Calculate Individual Patient CMOR Score [RG CMOR INDIV]
CSS   CMOR Score Calculation Status [RG CMOR STATUS]
DRS   Duplicate Record by CMOR Score [RG CMOR DUP SCORES]
STAT  Duplicate Record Statistics [RG CMOR DUP STATS]
```

BGN Start/Restart CMOR Score Calculation option [RG CMOR START]

The Start/Restart CMOR Score Calculation starts the background job that calculates the CMOR score for each active patient and records the score and date in your Patient file (#2). The process can be stopped during hours of peak activity and restarted at a later time.

```
Select Coordinating Master of Record (CMOR) Score Menu Option: BGN
Start/Restart CMOR Score Calculation

This is the initial run of the CMOR patient activity score generator.
Requested Start Time: NOW//<RET>
QUEUE INFORMATION MISSING - NOT QUEUED
```

HLT Stop CMOR Score Calculation [RG CMOR STOP]

This option is used to stop the background job prior to its completion.

```
Select Coordinating Master of Record (CMOR) Score Menu Option: HLT   Stop
CMOR Score Calculation
This option will stop the CMOR patient activity score generation
after it has completed calculating and filing the score for the current
patient.

Are you sure you want to do this? N// YES

Stop patient activity score generation after the current patient? N// YES

CMOR patient activity generation is flagged to stop after it has
completed the current patient. This may take a short time. Please check
the status later.
```

IND Calculate Individual Patient CMOR Score [RG CMOR INDIV]

This option calculates a CMOR patient activity score for an individual patient. After it is calculated, the score is filed in the Patient file.

```
Select Coordinating Master of Record (CMOR) Score Menu Option: IND  Calculate
Individual Patient CMOR Score
Select PATIENT NAME:  VETERAN,JOHN Q      10-06-50     111111111     4A-MED
 472-29     MED/ORANGE/3D     YES     SC VETERAN             --    G     G

This patient has an existing CMOR score of 2480 calculated on August 1, 2001.

Do you want to calculate and file a new score for this patient? NO// y  YES

Working. Please standby...

CMOR Activity Score: 2480 filed for Veteran,John Q  ssn: 111111111.
```

CSS CMOR Score Calculation Status [RG CMOR STATUS]

This option is used to check on the progress of the Start/Restart background job.

```
Select Coordinating Master of Record (CMOR) Score Menu Option: CSS CMOR Score
Calculation Status
The CMOR Activity Score Generator

There are 278309 records in your PATIENT file.
The last record number is 7317156.
Last Patient Processed: VETERAN,JOHN Q   SSN: 111111111   [RECORD# 35]

The CMOR score initialization last started on OCT 8,1998@15:42:29
 has processed 1 records and IS RUNNING.
```

DRS Duplicate Record by CMOR Score [RG CMOR DUP SCORES]

The Duplicate Record by CMOR Score option provides a listing of the CMOR scores from the Duplicate Record file (#15). It will display the number of duplicates per every 100 points. For example: there may be 10 patients with a score between 100 and 199. A NO SCORE means that the pair of potential duplicates had no score (no activity in the last three years). The total entries for the Patient file (#2) and the Duplicates Records file (#15) are also displayed.

The example below shows that the site has 184 duplicate record pairs where at least one of the 2 records has evidence of patient activity in the past 3 years. This will provide users with a better picture regarding the number of duplicate records that should be merged prior to the site initializing their Patient file (#2) against the Master Patient Index (MPI).

```
Duplicate Record Count by CMOR Score                Page: 1
                                                   Date: JUL 23,1998@16:05
------------------------------------------------------------------------------
This report is drawn from the Duplicate Record file (#15) with
CMOR scores from the PATIENT file, CMOR ACTIVITY SCORE field.

- If both members of a pair have a score of zero the pair is
 counted in the '0' group.
- If one or both members of the pair have a score greater than
 zero, that pair is counted in the group for the higher score.
- If neither member of the pair have a CMOR score, the pair is
 counted in the 'NO SCORE' group.

         Score Range                  Count
         -----------                  -----

         1 - 99                         24
         100 - 199                       6
         200 - 299                       2
         300 - 399                       3
         400 - 499                       7
         500 - 599                       3
         600 - 699                       2
         700 - 799                       2
```

```
          900 - 999                          1
         1000 - 1099                         1
         1100 - 1199                         4
         1200 - 1299                         1
         1300 - 1399                         1
         1400 - 1499                         1
         1500 - 1599                         2
         1600 - 1699                         1
         1700 - 1799                         2
         1800 - 1899                         1
         2100 - 2199                         1
         2300 - 2399                         1
         2400 - 2499                         2
         2500 - 2599                         1
         2600 - 2699                         1
         2800 - 2899                         1
         3000 - 3099                         1
         3200 - 3299                         1
         3500 - 3599                         1
         7400 - 7499                         1
         7700 - 7799                         1
         NO SCORE                          108

TOTAL Potential Duplicates (15):           184
TOTAL Patients (2):                      77160..
```

STAT Duplicate Record Statistics [RG CMOR DUP STATS]

This option provides the user with the percentiles of the patients in the various status categories for merge and verification status.

```
Select Coordinating Master of Record (CMOR) Score Menu Option: STAT
Duplicate Record Statistics
Duplicate Record File Statistics Scan

Requested Start Time: NOW// <RET> (JUL 08, 1998@13:29:07)
 Task# 201539 queued to run.
```

When the scan is completed, you will receive a mail message similar to the following:

```
Subj: Duplicate Record Counts: ALBANY, NY  [#93979] 08 Jul 98 13:29  13 Lines
From: POSTMASTER  in 'IN' basket. Page 1  **NEW**
------------------------------------------------------------------------------
Duplicate Record (^DPT) Statistics              Run Date: JUL
8,1998@13:29:11

ALBANY, NY (500)

Counts by:  Merge Status and Match Percentile:

   Merge Status: READY
     Percentile: 80          9
     Percentile: 90          23
     Percentile: 100         13

   Merge Status: MERGED
     Percentile: 100         4
```

```
   Merge Status: UNKNOWN
     Percentile: 60          27
     Percentile: 70          37
     Percentile: 80          42
     Percentile: 90          16
     Percentile: 100         13

 Counts by:  Verification Status and Match Percentile:

   Verification Status: POTENTIAL DUP., UNVERIF
     Percentile: 60          27
     Percentile: 70          37
     Percentile: 80          36
     Percentile: 90          1
     Percentile: 100         1

   Verification Status: REQUIRES RESOLUTION
     Percentile: 80          6
     Percentile: 90          15
     Percentile: 100         12

   Verification Status: VERIFIED DUPLICATE
     Percentile: 80          9
     Percentile: 90          23
     Percentile: 100         17


Select MESSAGE Action: IGNORE (in IN basket)// <RET>
```

NOTE: Patches XT*7.3*49, RG*1*6, and RG*1*10 allow sites with MPI/PD to resolve duplicate records. If you do not have these patches installed, it is recommended that the option to merge patient records be placed out of order.

Patient File Initialization to MPI [MPIFINIT DPT TO MPI]

This is a one-time-use option run by the MPI/PD installation team when they intialize your site to the MPI. **It should not be run again.** It is covered here only to give you an understanding of what happens during the initialization.

Each patient processed will be looked up in the Master Patient Index - Austin (MPI) using SSN (unless pseudo or missing SSN), Date of Birth and Name. If not found in the MPI, the MPI will add this patient to the MPI, assign the integration control number (ICN), and the initial CMOR. This information will be added to the site's Patient file (#2) when the return message from the MPI is processed. The site initializing will be added as treating facility in the Treating Facility List file (#391.91).

The initial CMOR will be the first site at which the MPI encounters that patient. If a patient match is found in the MPI, the site will be added as a treating facility in the Treating Facility List file (#391.1) and the ICN and CMOR will be added to your site's Patient file. Since the initial CMOR assignment may not be correct, MPI/PD includes other options for a background comparison of CMOR Activity Scores and a manual way to request changing the CMOR.

```
Select MPI/PD IRM Menu Option:: Patient File Initialization to MPI
START TIME:  NOW//  <RET> (OCT 23, 1998@19:02)
STOP TIME:  OCT 23, 1998@19:02// T+1@2400  (OCT 24, 1998@24:00)
TASK #: 5048822
VAH,ROU>
```

The option builds and processes batch messages that contain 100 (at most) patient names each. You can monitor the progress using the Systems Link Monitor option in the HL7 V. 1.6 package.

```
Select HL7 Main Menu Option: ?

         Systems Link Monitor
         Filer and Link Management Options ...
         Message Management Options ...
         Interface Developer Options ...
         Site Parameter Edit

Enter ?? for more options, ??? for brief descriptions, ?OPTION for help text.

Select HL7 Main Menu Option: SYStems Link Monitor
```

These messages will first show up on the MPIVA entry in the MESSAGES TO SEND and then the MESSAGES SENT columns. Within approximately five minutes (it may be longer if other sites are also initializing during this time), batch acknowledgements will begin to show up on the site's node (in the following example, VABAY) first in the MESSAGES RECEIVED and then the MESSAGES PROCESSED columns.

Example of a System Link Monitor:

```
             SYSTEM LINK MONITORY for BAY PINES (Test System)

           MESSAGES    MESSAGES   MESSAGES    MESSAGES  DEVICE
NODE        RECEIVED    PROCESSED  TO SEND     SENT      ON-LINE     STATE

RA-PHIL      5           5          5           5        Y        Inactive
NPTF         0           0          7           7        Y        Inactive
VABAY        8           8          0           0                 0 Server
MPIVA        0           0          20          20       Y        Inactive
VAWPB        0           0          1           1        Y        Inactive

    Number of incoming filers running => 2
    Number of outgoing filers running => 2
Select a Command: (N) NEXT (B) BACKUP (Q) QUIT (A) ALL LINKS (S) SCREENED (?)
HELP:
```

If messages do not appear to be going out or if the state of the link is "openfail", see Appendix G - Trouble Shooting in the Master patient Index/Patient Demographics (MPI/PD) Installation and Implementation Guide.

Restart Processing for a Specific Event

```
Select MPI/PD Event Queue Manager Option: Halt MPI/PD Event Queue
Do you want to stop ALL MPI/PD processing? NO// <RET>
Do you want to ENABLE/DISABLE a particular data class? NO// YES
Select MPI/PD Data Class: MPIF CMOR RESULT

NOTE: This class is currently disabled
  ...Do you want to ENABLE? NO// y  YES ...Done.
```

MPI/PD Status Display [RG STATUS DISPLAY]

This report gives a quick overview of the current statuses of Exceptions, Patient Data Reviews, CMOR Change Requests, background jobs, CMOR scores, national ICNs, and Local ICNs at your site.

```
Select MPI/PD IRM Menu Option: SD  MPI/PD Status Display


Exception Handler Entries:
--------------------------
SSN Match Failed                                          2
Name Doesn't Match                                        1
Death Entry on Vista not in MPI                           1
Death Entries on MPI and Vista DO NOT Match               1
Potential Matches Returned                                2

Total number of exceptions:                               7
Total unique patient exceptions:                         10

Patient Data Review Entries:
----------------------------
ACTION REQUIRED                                           3
DATA EXAMINED                                             3
BEING REVIEWED                                            1

CMOR Requests Status:
---------------------
APPROVED                                                  2

The VAFC BATCH UPDATE background job is NOT currently scheduled.
  (Total DATA UPDATES waiting to be processed = 0)
  (Total TREATING FACILITY UPDATES waiting to be processed = 2)
The MPIF LOC/MIS ICN RES background job is NOT currently scheduled.
MPI/PD Event Queue processor is currently NOT RUNNING.
  (Total entries in Event Queue waiting to be processed = 1)
STOP MPI/PD MESSAGING currently set to SEND MESSAGES.
Audit on NAME (#.01) field of PATIENT (#2) file set to YES, ALWAYS

Current total number of Patients with CMOR Scores = 187
Current total number of National ICNs = 53
Current total number of Local ICNs = 14
```

Files

Number Space

The MPI/PD package file range is 990-995 and 997-999.99. (File range 996-996.99 is reserved for Extensible Editor.)

File List

This manual covers those elements that are used by the Patient Demographics portion of this package. A separate Technical manual is available for MPI **V***IST***A**.

File 990.8 CIRN REPOSITORY SITE PARAMETER

This file contains settable parameters that control the behavior of various components of the CIRN Object Repository.

File 991.1 CIRN HL7 EXCEPTION LOG

This file contains exception messages logged during the generation of outbound messages and the processing of inbound messages. Some fields apply only for entries logged by message generation routines, others only to message processing routines, and others to both.

This file should not be edited directly. Instead, use the exception management utilities to manage entries in this file.

File 991.11 CIRN HL7 EXCEPTION TYPE

This file lists the types of exceptions that can be logged and additional information about the exceptions.

You may edit the Action (#2) and Mail Group (#6) fields in this file to suit your needs. No other fields should be modified.

File 991.8 CIRN SITE PARAMETER

This file is used to store generic site parameters for the Master Patient Index/Patient Demographic (MPI/PD) package. Only one entry (entry number 1) should exist in this file.

Input Templates:
MPIF SITE PARAMETERS

File 995 CIRN EVENT ASSOCIATION

This file holds definitions of CIRN events that occur. When an event occurs, an entry is placed into a queue and is associated with an entry in this file. This file will determine how the event is processed (i.e., the routine to call to process the event and related HL7 Protocol).

Since each event type is placed on it's own queue, this file also determines characteristics of the queue itself.

File 995.1 CIRN EVENT EXCEPTION

If a soft-error or hard-error occurs while processing a MPI/PD event, an entry is placed in this file and the event is removed from the active queue. This file holds all necessary information to research the error and to re-process the event after the error-condition is corrected.

Input Templates:
RGEQ NEW EXCEPTION

File 995.2 CIRN EVENT STATISTICS

For each event association (or event type) statistics are automatically stored each time the event is triggered. Statistics are grouped by date and event type.

Print Template:
RGEQ STAT

Sort Template:
RGEQ STAT

Input Templates:
RGEQ NEW STATISTIC

File Information

The following information on files introduced by MPI/PD V. 1.0 is broken down according to the portion of the Build the file appears in.

CIRN Patient Demographics Files

FILE #	NAME	Global	UP DATE DD	SEND SEC CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
991.8	CIRN SITE PARAMETER	^RGSITE(991.8,	YES	NO	NO			

CIRN Messaging Components

There are no files associated with the CIRN Messaging Components.

CIRN Messaging Support

FILE #	NAME	Global	UP DATE DD	SEND SEC CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
990.8	CIRN REPOSITORY SITE PARAMETER	^RGSITE("COR",	YES	NO	YES	OVER	NO	NO
991.1	CIRN HL7 EXCEPTION LOG	^RGHL7(991.1,	YES	YES	NO			
991.11	CIRN HL7 EXCEPTION TYPE	^RGHL7(991.11	YES	YES	YES	OVER	YES	NO
995	CIRN EVENT ASSOCIATION DATA SCREEN: I $P(^(0),U)="SCN_REQ" !($P(^(0),U,1)["MPIF")	^RGEQASN(	YES	YES	YES	OVER	YES	NO
995.1	CIRN EVENT EXCEPTION	^RGEQEXC(	YES	YES	NO			
995.2	CIRN EVENT STATISTICS	^RGSTAT(995.2,	YES	YES	NO			

Master Patient Index **V***IST***A**

FILE #	NAME	Global	UP DATE DD	SEND SEC CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
984.1	MASTER PATIENT INDEX (LOCAL NUMBERS)	^MPIF(984.1,	YES	YES	NO			
984.5	MPI CHECKDIGIT	^MPIF(984.5,	YES	YES	YES	OVER	NO	NO
984.8	MPI ICN BUILD MANAGEMENT	^MPIF(984.8,	YES	YES	YES	OVER	NO	NO
984.9	MPIF CMOR REQUEST	^MPIF(984.9,	YES	YES	NO			

*DG*5.3*231*

FILE #	NAME	Global	UP DATE DD	SEND SEC CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
2	PATIENT Partial DD: subDD: 2 fld: .02 fld: .03 fld: .05 fld: .08 fld: .09 fld: .111 fld: .1112 fld: .112 fld: .113 fld: .114 fld: .115 fld: .117 fld: .131 fld: .132 fld: .211 fld: .219 fld: .2403 fld: .301 fld: .302 fld: .31115 fld: .323 fld: .351 fld: 391 fld: 1901	^DPT(	YES	YES	NO			

Routines

The following routines distributed with MPI/PD 1.0 are broken down according to the portion of the Builds they are in.

CIRN Patient Demographics

RGJCTS01	Subscription Control Startup Utility TO CMOR
RGJUSITE	Routine to hold API for the CIRN Parameter file 991.8
RGMTAUD	CIRN Audit file Print for a Specified Patient
RGMTAUDP	CIRN Audit file Print of Patient Data
RGMTDPCT	Count Entries for ^DPT in Dup. Record file
RGMTDPSC	Count duplicate record entries by CMOR score range
RGMTTFL	Treating Facility List Statistics
RGPDENV	Environment Check
RGPDPST	Post Init
RGPRELIG	Test and compare Files 8 and 8.1. This routine was deleted in RG*1*19.
RGPRSSN	CIRN Pseudo/Missing SSN Report
RGRSBULL	RGRSTEXT Bulletin routine
RGRSDYN	Build dynamic link list for a patient
RGRSDYN1	Build dynamic link list for a TFU
RGRSDYN2	Build dynamic link list for sensitivity
RGRSENS	Pt sensitivity parser/filer
RGRSMSH	Registration message parser for CIRN
RGRSPAR1	Registration message parser for CIRN TFU
RGRSPAR2	Sensitivity message parser for CIRN
RGRSPARM	Edit SEND/STOP/SUSPEND parameter
RGRSPARS	Registration message parser for CIRN
RGRSPT	High level routine for parsing and filing
RGRSUTIL	CIRN Utilities
RGRSUTL2	Utilities for CIRN
RGRSWPT	Active patient check
RGVCCMR1	CIRN CMOR activity score generator (part 1)
RGVCCMR2	CIRN CMOR activity score generator (part 2)
RGRSZZPT	Utility for CIRN
RGRSBUL1	RGRSTEXT Bulletin Routine (Part 2)

CIRN Messaging Support

RGEQ	Queue processor
RGEQDMN	Dequeue processor
RGEQDMN1	Dequeue processor continued
RGEQERR	Reprocess data class error. This routine was deleted in RG*1*19.
RGEQEXC	Error processor
RGEQRPT	Print CIRN queue statistics. This routine was deleted in RG*1*19.
RGEQSTAT	Statistics
RGEQSUB	Dequeue processor
RGHLEXC	HL7 exception handling utilities. This routine was deleted in RG*1*18.
RGHLEXC1	Generate exception statistics report
RGHLLOG	Log message processing info
RGHLPOST	CIRN Messaging Build Postinit
RGHLUT	HL7 message processing utilities
RGHOUT	HL7 message generation utilities
RGJCREC	CIRN Subscription Processor
RGJCSUB	CIRN Subscription Generator
RGMSENV	Environment Check

Master Patient Index V*ISTA*

MPIF001	APIs for ICN, IEN, CMOR information
MPIFA31I	Process ADT-A31 message from MPI
MPIFAPI	APIs for local ICNs
MPIFBT1	Batch query to MPI
MPIFBT2	Batch response from MPI
MPIFCMOR	Set and broadcast CMOR changes
MPIFDEL	Delete patient from MPI
MPIFEDIT	Request a CMOR for patient;
MPIFHL7	Processing incoming HL7 message;
MPIFNQ	Miscellaneous functions for CMOR
MPIFMER	Merge patient ICN
MPIFNEW	Create new request for patient demographic change
MPIFPST	Post-initialization
MPIFQ0	CIRN Query Handler top level
MPIFQ1	CIRN Query Handler

MPIFQED	Add patient returned in query
MPIFQUE3	Generate Batch message for comparison of CMOR score
MPIFQUE4	Process the CMOR COMPARISON request
MPIFQUE5	Process the RESULT from CMOR COMPARISON request
MPIFREQ	Process a CMOR request from Event Queue
MPIFRES	Batch processing to the MPI of locally assigned ICNs and patients added to the Patient file (#2) by means other than PIMS options.
MPIFRESS	Processes approve/disapprove CMOR change requests
MPIFREV	Review CMOR request
MPIFRTC	Get ICN from MPI using real time connection
MPIFSAQ	Stand alone query
MPIFSPC	Master Patient Index system check sum routine
MPIFUTL	CMOR Utilities
MPIFVTQ	Build data to query MPI response process (ADDPAT)

*DG*5.3*231*

DG53231P	The post-install routine DG53231P is invoked to re-compile all Print Templates and Input Templates for the affected fields.

Routines Added Since Release

Patch	Routine	Description
RG*1*2	RGP2ENV	RG*1*2 Patch Environment Check Routine
RG*1*1	RGEVPM	View Potential Match Patient List
RG*1*1	RGP1ENV	RG*1*1 Patch Environment Check Routine
RG*1*3	RGEVPRG	Options to Purge Cirn Exceptions
RG*1*3	RGEX01	List Manager For CIRN Exceptions
RG*1*3	RGEX03	List Manager For CIRN Exceptions
RG*1*3	RGEXHND1	CIRN Exception Handling Utility
RG*1*3	RGP3PST	RG*1*3 Patch Post-Init Routine
RG*1*3	RGRAS	CIRN PRE-Seeding Report For Treating Facility
RG*1*4	RG4POST	Post-Init Driver
RG*1*4	RGADT	ADT Message Processing/Routing
RG*1*4	RGADT1	Build ADT Messages
RG*1*4	RGADT2	File Seeding Routine (PD-MPI Load)

RG*1*7	RG7POST	RG*1*7 Patch Post-Init Routine
RG*1*5	RGFIACK	Process Application Acknowledgment
RG*1*5	RGFIBM	Send Facility Integration Message
RG*1*5	RGFIPM	Process Facility Integration Message
RG*1*5	RGFIPM1	Process Facility Integration Message
RG*1*5	RGFIRM	Route Facility Integration Message
RG*1*5	RGFIU	MPI/PD NDBI Merge Utility (Continued)
RG*1*5	RGP5ENV	RG*1*5 Patch Environment Check
RG*1*6	RGDRM01	MPI/PD Aware Duplicate Record Merge
RG*1*6	RGDRM02	MPI/PD Aware Duplicate Record Merge
RG*1*6	RGDRM03	MPI/PD Aware Duplicate Record Merge
RG*1*9	RGFICLN	MPI/PD NDBI Site Cleanup Utility
RG*1*9	RGP9ENV	RG*1*9 Patch Environment Check
RG*1*9	RGP9PST	RG*1*9 Patch Post Install Routine
RG*1*15	RGI15PST	Post-Init for RG*1.0*15
RG*1*16	RGSYSTAT	MPI/PD Status Display
RG*1*13	RGHLLOG1	Send Exception To MPI Exception Handler
RG*1*22	RGP22	Pre & Post Install Routine
RG*1*22	RGP22ENV	Environment Check Routine
RG*1*21	RGMTHL2	Compile MPI/PD HL7 Data For Bi-Directional TCP
RG*1*21	RGMTHLDB	MPI/PD HL7 Activity by Patient/Single Protocol
RG*1*21	RGMTHLDP	MPI/PD HL7 Activity by Patient/All Protocols
RG*1*21	RGMTHLP	MPI/PD HL7 Message Status Report
RG*1*21	RGMTHLPD	MPI/PD HL7 Message Status Report (Detailed)
RG*1*21	RGPOC	ADD/EDIT Point of Contact Option
RG*1*21	RGPOC1	Add/Edit Point of Contact Option - Continued
RG*1*23	RGEX04	List Manager Routine For MPI/PD Exception PDAT Query
RG*1*23	RGEX05	Listmanager Routine For Remote PDAT In Exception Handler
RG*1*23	RGRPDAT	Routine To Call Remote PDAT

Exported Options

NOTE: RG*1*19 made extensive menu changes including the removal of obsolete menus and options, moved some options to different menus, added new options, and changed user visible references from CIRN to MPI/PD except in file names and most field names where it appears. CIRN Master of Record (CMOR) is now Coordinating Master of Record.

Master Menu:

CORD MPI/PD Patient Admin Coordinator Menu ...[RG ADMIN COORD MENU]
ADU MPI/PD Patient Admin User Menu ....[RG ADMIN USER MENU]
IRM MPI/PD IRM Menu ....[RG IRM MENU]

The Patient Admin Coordinator menu options allow control and monitoring of CMOR, subscription, and patient data activities.

CORD MPI/PD Patient Admin Coordinator Menu [RG ADMIN COORD MENU]
- SP Site Parameters Edit for CMOR [MPIF SITE PARAMETER]
- CMOR CMOR User Menu ... [RG CMOR USER MENU]
  - IND Calculate Individual Patient CMOR Score [RG CMOR INDIV]
  - DRS Duplicate Record by CMOR Score [RG CMOR DUP SCORES]
  - STAT Duplicate Record Statistics [RG CMOR DUP STATS]
- ADU MPI/PD Patient Admin User Menu ...[RG ADMIN USER MENU]
  - Patient Data Review [VAFC EXCEPTION HANDLER]
  - Coordinating Master of Record (CMOR) Request ... [MPIF CMOR MGR]
    - Create a New CMOR Change Request [MPIF NEW REQUEST]
    - Push CMOR Request [MPIF PUSH CMOR]
    - Edit Open CMOR Change Request [MPIF EDIT REQUEST]
    - Review Pending Change of CMOR Requests [MPIF REVIEW REQUEST]
    - Batch Review of CMOR Change Requests [MPIF BATCH REVIEW]
    - Display a CMOR Change Request [MPIF VIEW REQUEST]
  - PEND Report - Pending Received Requests [MPIF RECEIVED REQUESTS]
  - SENT Report - Sent Requests Still Pending [MPIF SENT REQUESTS]
  - DIS Report - CMOR Request Disapproved [MPIF DISAPPROVE REPORT]
  - APP Report - CMOR Requests Approved [MPIF APPROVED REPORT]
- LOG Patient Audit Log Reports ...[RG TRAN/AUD AUD REP]
  - Custom Audit File Print [RGMT AUDIT PRINT]
  - Single Patient Audit File Print [RGMT AUDIT SINGLE]
- MPI Master Patient Index Menu ... [MPIF VISTA MENU]
  - Single Patient Initialization to MPI [MPIF IND MPI LOAD]
  - Display Only Query [MPIF DISPLAY ONLY QUERY TO MPI]
  - Inactivate Patient from MPI [MPIF PAT INACT]
- MSG Message Exception Menu ... [RG EXCEPTION MENU]
  - View Potential Match Patient [RG EXCEPTION POTENTIAL MATCH]
  - MPI/PD Exception Handling [RG EXCEPTION HANDLING]
  - Patient MPI/PD Data Inquiry [RG EXCEPTION TF INQUIRY]
  - Remote Patient Data Query Menu…[RG REMOTE PDAT MENU]

Send Remote Patient Data Query [RG REMOTE PDAT SEND]
Check Remote Patient Data Query [RG REMOTE PDAT CHECK]
Display Remote Patient Data Query [RG REMOTE PDAT DISPLAY]
RPT Management Reports ... [RG MGT REPORTS]
Pseudo-SSN Report [RGPR PRE-IMP SSN REPORT]
Treating Facility List Statistics [RGMT AUDIT TF STATISTICS]
MPI/PD Status Display [RG STATUS DISPLAY]
POC Add/Edit Point of Contact [RG UPDATE POINT OF CONTACT]

A separate MPI/PD Patient Admin User menu is provided for assignment to those personnel only involved with Patient Data Reviews and CMOR Change Requests. Information on using the options on this menu are discussed as part of the Patient Admin Coordinator Menu.

ADU MPI/PD Patient Admin User Menu ....[RG ADMIN USER MENU]
Patient Data Review [VAFC EXCEPTION HANDLER]
Coordinating Master of Record (CMOR) Request ... [MPIF CMOR MGR]
Create a New CMOR Change Request [MPIF NEW REQUEST]
Push CMOR Request [MPIF PUSH CMOR]
Edit Open CMOR Change Request [MPIF EDIT REQUEST]
Review Pending Change of CMOR Requests [MPIF REVIEW REQUEST]
Batch Review of CMOR Change Requests [MPIF BATCH REVIEW]
Display a CMOR Change Request [MPIF VIEW REQUEST]
PEND Report - Pending Received Requests [MPIF RECEIVED REQUESTS]
SENT Report - Sent Requests Still Pending [MPIF SENT REQUESTS]
DIS Report - CMOR Request Disapproved [MPIF DISAPPROVE REPORT]
APP Report - CMOR Requests Approved [MPIF APPROVED REPORT]

IRM MPI/PD IRM Menu ...[RG IRM MENU]
EQ MPI/PD Event Queue Manager ...[RGEQ MGR]
Start MPI/PD Event Queue [RGEQ START]
Halt MPI/PD Event Queue [RGEQ STOP]
Coordinating Master of Record (CMOR) Score Menu ...[RG CMOR MAIN]
BGN Start/Restart CMOR Score Calculation [RG CMOR START]
HLT Stop CMOR Score Calculation [RG CMOR STOP]
IND Calculate Individual Patient CMOR Score [RG CMOR INDIV]
CSS CMOR Score Calculation Status [RG CMOR STATUS]
DRS Duplicate Record by CMOR Score [RG CMOR DUP SCORES]
STAT Duplicate Record Statistics [RG CMOR DUP STATS]
Patient File Initialization to MPI [MPIFINIT DPT TO MPI]
SD MPI/PD Status Display [RG STATUS DISPLAY]

Menu Assignment

Menu	Assign to:
MPI/PD Master Menu [RGMGR]	Information Resource Management (IRM) personnel
MPI/PD IRM Menu ... [RG IRM MENU]	IRM personnel
MPI/PD Patient Admin Coordinator Menu ... [RG	Patient Administration/HAS/MPI/PD

ADMIN COORD MENU]	Coordinator
MPI/PD Patient Admin User Menu ... [RG ADMIN USER MENU]	Patient Administration/MAS users

Standalone Options

Stop/Send/Suspend MPI/PD Messages [RG PROCESS CONTROL]

The Stop/Send/Suspend MPI/PD Messages option is provided as a standalone option. It is **NOT** to be attached to any menu. This option is used to edit the STOP MPI/PD MESSAGING field (#16) in the CIRN Site Parameter file (#991.8), to stop/suspend/send messages.

STOP - should be used only to totally shutdown HL7 V2.3 and MPI/PD messages. It should only be used under the direction of System Design and Development.

SUSPEND - should be used in an emergency situation to suspend HL7 V2.3 and MPI/PD messages if the volume of messages is affecting system performance. System Design and Development should also be called in this situation.

SEND - normal operating mode.

MPI/PD HL7 Exception Notifier [RG EXCEPTION NOTIFIER]

The MPI/PD HL7 Exception Notifier [RG EXCEPTION NOTIFIER] option was added in patch RG*1*1 and is used to notify members of the RG CIRN DEMOGRAPHIC ISSUES mail group that there are exceptions to review. It is not a user option and should not be added to user menus.

MPI/PD Exception Purge [RG EXCEPTION PURGE]

The MPI/PD Exception Purge [RG EXCEPTION PURGE] option, added in patch RG*1*3 allows IRM to schedule the background job MPI/PD Exception Purge [RG EXCEPTION PURGE] via TaskMan to run once a week at an off-hours time that does not conflict with backups. It should not be placed on user menus. User's are offered the opportunity to purge these exceptions when using the MPI/PD Exception Handling [RG EXCEPTION HANDLING] option.

Local/Missing ICN Resolution Background Job [MPIF LOC/MIS ICN RES]

This option will start the background job of resolving local and missing ICNs against the MPI. It is recommended that this option be scheduled to run via TaskMan once every evening.

MPI/PD HL7 Diagnostic Menu [RGMT DIAG MGR]

This standalone menu contains a diagnostic tool and reports to assist with problem resolution for MPI/PD HL7 messaging. It should not be attached to any menu. This diagnostic tool will be used primarily by the MPI/PD development team and NVS.

CMP Compile MPI/PD HL7 Data [RGMT DIAG COMPILE HL7 DATA]
RPT MPI/PD HL7 Message Status Report [RGMT DIAG STATUS REPORT]
SNG MPI/PD HL7 Activity by Patient/Single Protocol [RGMT DIAG SINGLE PROTOCOL]
ALL MPI/PD HL7 Activity by Patient/All Protocols [RGMT DIAG ALL PROTOCOLS]

You must run the Compile MPI/PD HL7 Data option prior to using the other three options on this menu.

Compile MPI/PD HL7 Data [RGMT DIAG COMPILE HL7 DATA]

This option searches the HL7 MESSAGE ADMINISTRATION (#773) file for a selected date range. For each message in the date range, the HL7 MESSAGE TEXT (#772) file is examined. If the RELATED EVENT PROTOCOL (#10) field contains the MPI/PD protocols (e.g., "VAF" "RG" or "MPIF"), information is compiled into the ^XTMP("RGMT","HL" array. The data elements include the protocol name, date, transmission type (i.e., incoming or outgoing), status, and internal entry number (IEN) of the HL7 MESSAGE TEXT entry.

MPI/PD HL7 Message Status Report [RGMT DIAG STATUS REPORT]

This option prints information found during the Compile MPI/PD HL7 Data compilation. The MPI/PD HL7 Message Status Report is generated from the ^XTMP("RGMT","HL" array. The report is sorted by RELATED EVENT PROTOCOL, date, transmission type, and status.

Either a detailed or summary report can be printed for a selected date range. The summary report displays the total number of messages for each date, transmission type, and status. The right margin for this report is 80.

The detailed report can be printed for a single or all protocols and includes information from each HL7 message. The detailed report displays the related event protocol date, transmission type, status, message header date, date processed, internal entry number (IEN) from the HL7 MESSAGE TEXT (#772) file, message identification number, and whether or not the message has been purged. The right margin for this report is 132.

MPI/PD HL7 Activity by Patient/Single Protocol [RGMT DIAG SINGLE PROTOCOL]

This option prints information found during the Compile MPI/PD HL7 Data compilation for activity related to a specific protocol. The ^XTMP("RGMT","HL" array is searched for a user selected protocol, date range, transmission type and patient.

The report prints the patient's name, protocol, date range, transmission type, internal entry number (IEN) from the HL7 MESSAGE TEXT (#772) file, the date, and status. The HL7 message data found in the MESSAGE TEXT field is displayed. The right margin for this report is 80.

MPI/PD HL7 Activity by Patient/All Protocols [RGMT DIAG ALL PROTOCOLS]

This option prints information found during the Compile MPI/PD HL7 Data compilation for activity related to ALL protocols. The ^XTMP("RGMT","HL" array is searched for a user selected patient and date range.

The report prints the patient's name, date range, protocol, transmission type, internal entry number (IEN) from the HL7 MESSAGE TEXT (#772) file, the date, and status. The HL7 message data found in the MESSAGE TEXT field is displayed. The right margin for this report is 80.

Archiving and Purging

Archiving

There are no application-specific archiving procedures or recommendations for the MPI/PD package.

Purging

The MPI/PD package provides users with the opportunity to purge processed exceptions as part of the MPI/PD Exception Handling [RG EXCEPTION HANDLING] option. To access the MPI/PD Exception Handling option, start at the MPI/PD Patient Admin Coordinator Menu [RG ADMIN COORD MENU] and choose MSG Message Exception Menu [RG EXCEPTION MENU]. Upon entering the option, you will be told when the last purge took place and will be asked if you would like to run the purge now. If you choose to purge, you will have to wait a few minutes before using the MPI/PD Exception Handling option.

The purge removes duplicate entries, resolved entries over 30 days old, and entries for patients with names beginning with "ZZ" from the CIRN HL7 Exception Log file (#991.1). Regular purging provides you with the most up-to-date information on the List Manager screen. If you feel that waiting for the purge to complete is too time consuming, you can ask your IRM service to schedule the background job MPI/PD Exception Purge [RG EXCEPTION PURGE] via TaskMan to run once a week at an off-hours time that does not conflict with backups.

```
Select MPI/PD Patient Admin Coordinator Menu Option: msg  Message Exception
Menu

         View Potential Match Patient
         MPI/PD Exception Handling
         Patient MPI/PD Data Inquiry
         Remote Patient Data Query menu…

Select Message Exception Menu Option: mPI/PD Exception Handling

The MPI/PD Exception Purge process has not been run.
Do you want to run it now? NO// <RET>
```

The HL7 and MailMan packages have purging options that should be used to control the large number of HL7 messages that MPI/PD produce. Since IRM personnel have the option to use either HL7 or MailMan as the messaging component for sending and receiving data from the MPI, see the associated product documentation, listed below, for purging instructions specific to these packages:

- *DHCP Health Level Seven (HL7) Technical Manual*, Version 1.6 and up.
- *VA Electronic Mail System (MailMan) Technical Manual and Systems Management Guide*, Version 7.1 and up.

Callable Routines/Entry Points/ Application Programmer Interfaces (APIs)

This section documents the APIs supported by the MPI/PD package.

Messaging Support

Exception Handling

These API calls support the logging, review, and maintenance of exceptions created during the generation of outbound and processing of inbound HL7 messages.

START^RGHLLOG(MSG,EVENT,PARAM)

MSG	If the log entry is for the processing of an inbound message, this parameter should contain the IEN of the message in File #772. Otherwise, it should be null or missing.
EVENT	If the log entry is for the creation of an outbound message, this parameter should contain the name of the event type. This corresponds to the .01 field of the CIRN Event Association file (#995) (e.g., outpatient pharmacy is "RX") and corresponds to the first subscript of the Event Queue entry.
PARAM	For outbound messages, this is the event stub corresponding to the second subscript of the Event Queue entry. For inbound messages, this is the entry point of the message processing routine (defaulting to ^RGHL if not specified).

This call prepares the CIRN HL7 Exception Log file (#991.1) to receive a new entry. If the Minimal Exception Logging option in the CIRN Repository Site Parameter file (#990.8) is set to no, this call creates the new entry immediately. Otherwise, creation of an entry is deferred until an exception is actually logged. This call sets up a local array called RGLOG which contains information about the log entry. The calling routine should NEW this variable before making the call and reserve its use.

The Event Queue subdaemon calls this entry point for each event or message processed, so the processing routines associated with these do not need to make this call.

EXC^RGHLLOG(EXC,TEXT)

EXC	This is the identifier of the exception type in the CIRN HL7 Exception Type file (#991.11). Optionally, this parameter may be of the form "EXC^TEXT" where both parameters are specified in a single argument; or as "TEXT" where no exception type is specified. In this latter case, the exception type defaults to 18, which designates it to be unspecified.
TEXT (optional)	This is supplemental text for the exception. This is typically used to supply more detail about the cause of the exception. As noted above, this parameter may be passed instead as part of the first parameter. This option is provided to accommodate previous exception logging practices that did not distinguish different exception types.

This call logs the exception whose type is EXC. Optionally, supplemental text may be provided in TEXT to further describe the nature of the exception. Note there are actually three formats for passing exception data via this call. This is to provide the highest possible level of backward compatibility for previous exception logging methods. Wherever possible, one should provide an exception type when logging an exception. This enables the exception utility to provide additional assistance to the package support team in taking necessary steps toward resolving the exception.

STOP^RGHLLOG(STATUS)

STATUS	This is the completion status of the logged run. It should be 0 for success, 1 for failure.

This call closes the active log entry in the CIRN HL7 Exception Log file (#991.1). If minimal exception logging is in effect (see above), and no exceptions have been logged, no action is taken. Otherwise, the completion status and completion timestamp are stored.

The Event Queue subdaemon calls this entry point for each event or message processed, so the processing routines associated with these do not need to make this call.

DELLOG^RGHLEXC(IEN)

IEN	This is the internal entry number of the entry in the CIRN HL7 Exception Log file *(#991.1)that is to be deleted.

This deletes the specified entry from the CIRN HL7 Exception Log file (#991.1). This should be the only means by which entries are removed from this file. This call ensures that any referenced message entries are freed for purging by the HL7 package.

PURGE^RGHLEXC(DATE,OPTION)

DATE	This is the date, in VA FileMan format, before which all entries will be purged.
OPTION	This controls the behavior of the purge and can contain any of the following flags: C = Purge only entries marked as successfully completed. E = Do not purge entries that have logged exceptions. I = Interactive mode shows spinning icon and permits aborting purge by typing the ^ character.

This call permits controlled purging of the CIRN HL7 Exception Log file (991.1). It is invoked by the automated purge option (RGCIRN Purge) and uses the DELLOG^RGHLEXC call to perform the deletions.

REPROC^RGHLEXC(MSG,RTN)

MSG	This is the internal entry number of the message in File #772.
RTN (optional)	If specified, this is the entry point of the message processing routine. The default is ^RGHL, the Clinical Object Filer.

This call causes the message whose internal entry number is specified in MSG to be reprocessed by the Clinical Object Filer. If RTN is not specified, the entry point defaults to ^RGHL, which is the Clinical Object Filer. If the entry point DELETE^RGHL is specified, the observation data contained in the message is removed from the repository (see documentation for this API call for details).

This call effectively emulates the environment created by the HL7 Package when it receives an inbound message and invokes the message processing routine associated with that message. Thus, any routine designed to be invoked by the HL7 Package (version 1.6) to process an inbound message can be invoked through this call. At some point it is envisioned that the HL7 Package will incorporate this functionality into its toolset. At such time, calls to this entry point should be transitioned to the new entry point.

This call assumes that the first segment of the message is an MSH segment. It will reject any messages violating this assumption (e.g., a batch message).

Master Patient Index - VISTA

For information on callable routines associated with the Master Patient Index (MPI) **V*IST*A** package see the *Master Patient Index Technical Manual, Version 1.0*.

External Interfaces

The MPI/PD package makes extensive use of HL7 messaging to ensure synchronization of patient records between sites. Please refer to the Master Patient Index/Patient Demographics (MPI/PD) HL7 Interface manuals, and the Master Patient Index (MPI) **V***IST***A** HL7 Interface Specification manuals for complete details on message construction.

External Relations

The following packages (fully patched) must be installed at the site:

CAUTION!!
DO NOT INSTALL HL*1.6*39 in any TEST account!
If you install this patch in your test account, you will link your test account to all the other production accounts. Since there are similarities (e.g., patient names/data) in test and production, it would not be good for data from the test account to be transmitted to the production account at another site.

Application	Version # and Patches
CIRN	Version 0.5 fully patched
Scheduling	Version #5.3 SD*5.3*185
PIMS	Version #5.3 fully patched
HL7	Version #1.6 fully patched **NOTE:** Place HL*1.6*39 in Production account only
MailMan	Version #7.1 XM*DBA*115
KERNEL	Version #8 fully patched
KERNEL Toolkit	Version #7.3 fully patched
VA FileMan	Version # 22 fully patched
Run Time Library	Version 2.1
Pharmacy	If running Computerized Patient Record System (CPRS), fully patched version of Outpatient Pharmacy V. 7.0, and Inpatient V. 5.0.

NOTE: If you are a Cache site and are planning to use a multi-threaded listener (which is recommended), you will need patch XU*8.0*78.

Integration Agreements

The Database Integration Agreements (DBIAs) can be retrieved from Forum. The agreements fall into two categories: those controlled by other packages to which MPI/PD is a subscriber and those that MPI/PD controls to which other packages subscribe.

```
Username: FORUM
  MISUSE OF THIS SYSTEM AND INFORMATION IN THIS SYSTEM IS A FEDERAL CRIME
  ***********************************************************************
             NATIONAL VISTA SUPPORT (Including **FORUM**)
                      CIO NATIONAL HELP DESK
     7:00am-6:30pm Central Time, Monday-Friday 1-888-596-HELP (4357)
             If you have trouble with the toll-free number,
                 call 205-554-3460 through 205-554-3465
                       (Tuscaloosa CIOFO)
  AFTER-HOURS EMERGENCY VISTA SUPPORT (via Pager) (IRM Staff Only - Please)
  AXP VMS/DSM Sites                ..1-800-368-7205
  AVANTI Alpha/NT and OpenM Site   ..1-800-368-5787
```

```
  NETWORKS                        ..1-800-278-4551
  MS EXCHANGE                     ..1-800-368-7204
  FORUM TECHNICAL SUPPORT         ..1-888-694-9406 or 1-800-865-1855
  ********************************************************************
                 General ***FORUM*** Information
  MODEMS:  301-427-3840 (24 lines/28.8k) and 301-427-3870 (8 lines/9.6k)
  ACCESS INFORMATION:  Contact your local security officer or IRM
  MailMan messages greater than 24 months old are purged monthly
  Refer to the FORUM Policy and Guidelines for more information
  ********************************************************************
  PLEASE NOTE: The capability to queue for later the delivery of a
  message to a particular user or mail group does not seem to work
  sometimes. Until this problem is resolved, please use this capability
  with caution.

Volume set: ROU:FORUM6  UCI: VAH  Device: _TNA9039: (152.128.3.77:3852)

ACCESS CODE:
VERIFY CODE:

Good morning
    You last signed on today at 09:32


  1      Mailman Menu ...
  3      E3R Developer Menu ...
  4      Patch User Menu ...
  5      DBA ...
  6      NOIS ...
  7      SAGG Access to Albany CIOFO
  8      Print Status of Pkg Implementation at Sites
  9      Edit User Characteristics
  10     ADP, COTS and OA Survey Menu ...
  11     FORUM Primary Menu ...

Select Software Services Primary Menu Option: 5  DBA


         List Package file by Name
         List Package file by Prefix
         Find lo-high range of filenumbers
         Package file inquire
         Package file inquire by #
         Institution file inquire
         SACC Exemptions ...
         Domain file inquire
         Integration Agreements Menu ...
         Standards and Conventions
         MOP-UP ...
  TCP    Print TCP/IP Domain Data Summary
         Children of a package
         GUI Standard Guidelines
         List Manager Standards ...
         SAGG Access to Albany CIOFO

Select DBA Option: integration Agreements Menu


  O      Instructions for Entering IA's
  1      Get New Integration #'s
```

```
  2       Add/Edit
  3       Inquire
  4       Roll-up into Mail Message
  5       File Agreements Menu ...
  6       Routine Agreements Menu ...
  7       Subscriber Package Menu ...
  8       Custodial Package Menu ...
  9       Print Other
  10      Print Pending
  11      Print Active
  12      Print All
  13      Supported References Menu ...
  14      Private References Menu ...
  15      Controlled Subscription References Menu ...
  16      Agreement Lookup by Variable
```

Use Option 7 Subscriber Package Menu to view those agreements that MPI/PD subscribes to (under the package name of CIRN).

```
Select Integration Agreements Menu Option: 7  Subscriber Package Menu


  1       Print ACTIVE by Subscribing Package
  2       Print ALL by Subscribing Package



Select Subscriber Package Menu Option: 1  Print ACTIVE by Subscribing Package
START WITH SUBSCRIBING PACKAGE: FIRST// CIRN
 GO TO SUBSCRIBING PACKAGE: LAST// CLinical Information Network Resources
DEVICE:   UCX DEVICE    Right Margin: 80// <RET>
```

Return to the Integration Agreements Menu and choose Option 8, Custodial Package Menu to view the agreements for which MPI/PD is the Custodian (under the package name of CIRN).

```
  0       Instructions for Entering IA's
  1       Get New Integration #'s
  2       Add/Edit
  3       Inquire
  4       Roll-up into Mail Message
  5       File Agreements Menu ...
  6       Routine Agreements Menu ...
  7       Subscriber Package Menu ...
  8       Custodial Package Menu ...
  9       Print Other
  10      Print Pending
  11      Print Active
  12      Print All
  13      Supported References Menu ...
  14      Private References Menu ...
  15      Controlled Subscription References Menu ...
  16      Agreement Lookup by Variable

Select Integration Agreements Menu Option: 8  Custodial Package Menu
```

```
  1      ACTIVE by Custodial Package
  2      Print ALL by Custodial Package
  3      Supported References Print All

Select Custodial Package Menu Option: 1  ACTIVE by Custodial Package
Select PACKAGE NAME: CIRN  CLINICAL INFO RESOURCE NETWORK        RG
DEVICE: HOME//   UCX DEVICE    Right Margin: 80//<RET>
```

Internal Relations

All routines, files, and options within the MPI/PD software can function independently.

Package-wide Variables

There are no package-wide variables associated with MPI/PD.

Software Product Security

MPI/PD Mail Groups

Mailgroup	Suggested Coordinator	Suggested Members
RG CIRN DEMOGRAPHIC ISSUES	Health Administration Service (HAS)/MPI/PD Coordinator	Personnel that deal with patient data.
RG CIRN HL7 PROBLEMS	Person who will monitor MPI/PD HL7 problems.	Person who will monitor MPI/PD HL7 problems.
MPIF EXCEPTIONS	Messages are sent to the MPI Exception Handler on the Austin MPI.	Messages are sent to the MPI Exception Handler on the Austin MPI.
MPIF CMOR REQUEST	Person who will monitor CMOR Change Requests.	Personnel that will process CMOR Change Requests.
HL7 SITE POC (on FORUM)	Person who will monitor MPI/PD HL7 problems.	Person who will monitor MPI/PD HL7 problems.

Bulletins

Extensive information on bulletins may be found on in the Implementation and Maintenance section of this manual and in Appendix E.

Remote systems

The MPI/PD package makes extensive use of HL7 messaging to ensure synchronization of patient records between sites. Please refer to the *Master Patient Index/Patient Demographics (MPI/PD) HL7 Interface manual*, and the *Master Patient Index (MPI)* **V***IST***A** *HL7 Interface Specification* manuals for complete details on message construction.

Archiving/Purging

There are no application-specific archiving procedures or recommendations for the MPI/PD package.

The MPI/PD package provides users with the opportunity to purge processed exceptions as part of the MPI/PD Exception Handling [RG EXCEPTION HANDLING] option. To access the MPI/PD Exception Handling option, start at the MPI/PD Patient Admin Coordinator Menu [RG ADMIN COORD MENU] and choose MSG Message Exception Menu [RG EXCEPTION MENU]. Upon entering the option, you will be told when the last purge took place and will be asked if you would like to run the purge now. If you choose to purge, you will have to wait a few minutes before using the MPI/PD Exception Handling option.

The purge removes duplicate entries, resolved entries over 30 days old, and entries for patients with names beginning with "ZZZ" from the MPI/PD HL7 Exception Log file (#991.1). Regular purging provides you with the most up-to-date information on the List Manager screen. If you feel that waiting for the purge to complete is too time consuming, you can ask your IRM service to schedule the background job MPI/PD Exception Purge [RG EXCEPTION PURGE] via TaskMan to run once a week at an off-hours time that does not conflict with backups.

The HL7 and MailMan packages have purging options that should be used to control the large number of HL7 messages produced by MPI/PDI.

Contingency Planning

Sites should have a local contingency plan to be used in the event of application problems in a live environment. Field station Information Security Officers (ISOs) can get assistance from the Regional ISO (RISO).

Stop/Send/Suspend MPI/PD Messages [RG PROCESS CONTROL]

The Stop/Send/Suspend MPI/PD Messages option is provided as a standalone option. It is **NOT** to be attached to any menu. This option is used to edit the STOP MPI/PD MESSAGING field (#16) in the CIRN SITE PARAMETER file (#991.8), to stop/suspend/send messages.

STOP - should be used only to totally shutdown HL7 V2.3 and MPI/PD messages. It should only be used under the direction of System Design and Development.

SUSPEND - should be used in an emergency situation to suspend HL7 V2.3 and MPI/PD messages if the volume of messages is affecting system performance. System Design and Development should also be called in this situation.

SEND - normal operating mode.

In the event that connection to the MPI cannot be made, MPI/PD will assign local ICNs. These will be processed against the MPI in a background job once connection is re-established.

Interfacing

MPI/PD does not interface with any non-VA products at the present time.

Electronic Signatures

MPI/PD does not use electronic signatures.

Menus

The MPI/PD Menu List appears in the External Options section of this manual.

Security Keys

There are no security keys in the MPI/PD package.

Files with Security Access

FILE #	NAME	DD ACCESS	RD ACCESS	WR ACCESS	DEL ACCESS	LAYGO ACCESS
990.8	CIRN REPOSITORY SITE PARAMETER					
991.1	CIRN HL7 EXCEPTION LOG					
991.11	CIRN HL7 EXCEPTION TYPE	@	@	@	@	@
991.8	CIRN SITE PARAMETER					
995	CIRN EVENT ASSOCIATION					
995.1	CIRN EVENT EXCEPTION					
995.2	CIRN EVENT STATISTICS					

References

VHA CIRCULAR 10-91-050, DATED MAY 15, (SUBJ: NATIONAL HEALTH CARE PLAN)
VHA DIRECTIVE 10-92-031, DATED MARCH 23, 1992 (SUBJ: VA MEDICAL CENTER NETWORKS {RCS10-0855}).
VHA DIRECTIVE 10-94-100, DATED OCTOBER 6, 1994 (SUBJ: GUIDANCE FOR THE IMPLEMENTATION OF PRIMARY CARE IN VHA)
VISION FOR CHANGE: A PLAN TO RESTRUCTURE THE VETERANS HEALTH ADMINISTRATION (1995)
MASTER PATIENT INDEX/PATIENT DEMOGRAPHICS (MPI/PD) HL7 INTERFACE SPECIFICATION DOCUMENT
MONOGRAPH: MASTER PATIENT INDEX (AT HTTP:// WWW . **V***IST***A** . MED . VA . GOV/TIEST /MPI/MPIMONOG.HTML)
WHITE PAPER ON *CIRN PATIENT DEMOGRAPHICS COMPONENT - INITIAL SYNCHRONIZATION PROPOSAL*.
INTERFACILITY OUTPATIENT REFERRALS WITHIN THE VISN ORGANIZATIONAL MODEL STUDY DOCUMENT (1995).
CIRN FOCUS GROUP MEETING (7/97) MINUTES.
DUPLICATE RECORD MERGE: PATIENT MERGE FUNCTIONAL SPECIFICATIONS (1996).

Official Policies

The MPI/PD V. 1.0 release is controlled on a site-by-site basis. Sites must have installed CIRN Pre-Installation and Implementation V. 0.5 and completed all of the pre-implementation steps prior to the installation of MPI/PD V. 1.0.

How to Generate Online Documentation

On-line documentation about the Master patient Index/Patient Demographics (MPI/PD) package may be obtained in a number of ways:

Retrieving Online Help Using Question Marks

The use of question marks at the file and field level is described in the *VA FileMan Technical Manual*. The use of question marks within the menu system invokes help about options and menus. One question mark at the top-level menu prompt displays the items available on the menu. Two question marks will show the Common Menu available to all users, as well as any secondary menu options for the current user. Locked options are displayed, if the user holds the key. Three question marks display descriptions of the options from the Option file. Four question marks display a help frame, if one has been associated with this option in the Option file. A question mark followed by the name of an option on the current menu displays a help frame, if one has been named for that option in the Option file.

Print Options File

The Print Option file, in the Kernel's Menu Management Menu, displays a list of namespaced options associated with the MPI/PD package. Other namespaced entries may also be retrieved from the Print, Input, and Sort Template files, and the Security Key, Function, Bulletin, and Help Frame files. MPI/PD uses the RG namespace excluding RGED (reserved for Extensible Editor) and RGUT (reserved for Run Time Library).

List File Attributes

Use this VA FileMan option to generate documentation pertaining to files and file structure. Use the Standard format to obtain the following data dictionary information for a specified file(s):

- File name and description
- Identifiers
- Cross-references
- Files pointed to by the file specified
- Files which point to the file specified
- Input, print, and sort templates

Additionally, the following information is supplied for each field in the file:

- Field name and number
- Global location
- Description
- Help prompt
- Cross-reference(s)
- Input transform

- Date last edited
- Notes

Use the Global Map format of this option to generate a list of the following:

- All cross-references for the selected file
- Global location of each field in the file
- Input, print, and sort templates

Inquire to Option File

Use this VA FileMan option to generate documentation pertaining to files and file structure. Use the Standard format to obtain the following data dictionary information for a specified file(s):

- File name and description
- Identifiers
- Cross-references
- Files pointed to by the file specified
- Files which point to the file specified
- Input, print, and sort templates

XINDEX

This option analyzes the structure of a routine(s) to determine in part if the routine(s) adheres to **V*IST*A** Programming Standards. The XINDEX output may include the following components: compiled list of errors and warnings, routine listing, local variables, global variables, naked globals, label references, and external references. By running XINDEX for a specified set of routines, the user can learn of any deviations from **V*IST*A** Programming Standards which exist in the selected routine(s) and see how routines interact with one another, that is, which routines call or are called by other routines.

To run XINDEX for the MPI/PD software, specify the following namespaces at the "routine(s) ?>" prompt: RG*
-RGED*
-RGUT*

RG initialization routines which reside in the UCI where XINDEX is being run, compiled template routines, and local routines found within the RG namespace should be omitted at the "routine(s) ?>" prompt. To omit routines from selection, preface the namespace with a minus sign (-). RGED* (reserved for Extensible Editor) and RGUT* (reserved for Run Time Library) should be omitted.

Glossary

Active Patients	Patients who have been seen at a site within the past three years.
ADT (Admission Discharge and Transfer)	A part of the Patient Information Management System (PIMS).
ADT/HL7 Pivot File	Changes to any of the fields of patient information will be recorded and an entry created in the ADT/HL7 Pivot File. When an update to a patient's treating facility occurs, this event is added to the ADT/HL7 Pivot file and marked for transmission. A background job will collect these updates and broadcast the appropriate HL7 message (A08 Patient Update or MFN Treating Facility Updates). This is a ADT HL7 message designed for MPI/PD.
Batch Messages	There are instances when it is convenient to transfer a batch of HL7 messages. Common examples related to MPI/ PD are queries sent to the MPI for an ICN during the initialization process, the resolution of Local or Missing ICNs, and CMOR Batch Comparisons. Such a batch could be sent online using a common file transfer protocol.
Bulletins	MPI/PD generates messages and bulletins to alert the user to problems that occur in generating or processing HL7 messages. The Message Exception Menu contains options to manage the problems.
Clinical Patient Record System (CPRS)	CPRS provides a computer-based patient record and organizes and presents all relevant data on a patient in a way that directly supports clinical decision-making. CPRS integrates the extensive set of clinical and administrative applications available within **V*IST*A**.
Clinical Subscriber	The category of clinical subscriber is reserved for future use.
CMOR Activity Score	The CMOR Activity Score reflects a patient's activity at a site over the past 3 years. It is used during initialization with the MPI to identify active patients. It is later used in determining the logical CMOR for a patient. The CMOR activity score is stored in the Patient file along with the date last calculated. It can be recalculated as needed. Following the initialization with the MPI, a site runs an option that identifies the shared patients for which it is **not** the CMOR. An option is provided to send messages to the CMOR sites in order to compare the CMOR scores and reassign the CMOR if that action appears to be appropriate. Changing the CMOR requires agreement between the two sites involved.
Coordinating Master of Record (CMOR)	The CMOR site is the designated "owner" of the patient's descriptive and clinical data. A patient has only one CMOR at a time, but the CMOR can change. Initially, the MPI assigns the Coordinating Master of Record based upon the first site at which the MPI encounters the patient. The designation of a site as the CMOR for a patient does not provide "workload credit" or any other distinction. This is a new field in the Patient file.

Date of Death	A patient may be entered as deceased at a treating facility. If a shared patient is flagged as deceased, a RG CIRN DEMOGRAPHIC ISSUES bulletin is sent to each subscribing site telling where, when, and by whom the deceased date was entered. Each site can then review whether the patient should be marked as deceased at their site.
Demographic Data	Identifying descriptive data about a patient, such as, name, sex, date of birth, marital status, religious preference, SSN, address, etc.
Descriptive Subscriber	Descriptive subscribers receive key changes to patient demographic information including CMOR changes and updates to the subscription and treating facilities lists.
Direct Connect	The Direct Connect is a real-time TCP/IP connection to the Master Patient Index to allow for an immediate request for an ICN. It is activated when using and the following PIMS options: Register A Patient, Load/Edit Patient Data, and 10-10T Registration processes in PIMS and when using the following MPI options: MPI Single Patient Initialization Display Only Query option .
Eligibility Codes	Codes representing the basis of a patient's eligibility for care.
Health Level 7 (HL7)	A national level standard for data exchange in all healthcare environments regardless of individual computer application systems.
Health Level 7 (HL7) **V*IST*A**	A messaging system developed as a **V*IST*A** software package that follows the HL7 Standard for data exchange.
HINQ (Hospital Inquiry)	The Hospital Inquiry (HINQ) module provides the capability to request and obtain veteran eligibility data via the VA national telecommunications network. Individual or group requests are sent from a local computer to a remote Veterans Benefits Administration (VBA) computer where veteran information is stored. The VBA network that supports HINQ is composed of four computer systems located in regional VA payment centers.
HL7 MFN Messages	An HL7 Update Treating Facility message type (Master File Notification [MFN]). When an update to a patient's treating facility occurs, this event is added to the ADT/HL7 Pivot file and marked for transmission. A background job will collect these updates and broadcast the HL7 MFN messages. This is an ADT HL7 message designed for MPI/PD.

Integration Control Number (ICN)	The Integration Control Number (ICN) is a unique identifier assigned to patients when they are added to the Master Patient Index. ICNs link patients to their records across VA systems. The ICN follows the American Society for Testing Materials (ASTM) E1714-95 standard for a universal health identifier.
Master Patient Index (MPI-Austin)	The MPI is the master index of all VHA patients. The MPI assigns and maintains unique national patient identifiers, Integration Control Numbers or ICNs, which link patients to their records across VHA systems. The MPI also assigns the initial CMOR (first site to identify the patient to the MPI). It contains patient's identifying descriptive information (e.g., name, SSN, date of birth, mother's maiden name, place of birth state, and place of birth city).
Master Patient Index (MPI - **V***IST***A**)	This software resides in **V***IST***A** and supports the Austin side of the MPI, as well as the CMOR (Coordinating Master Of Record) change requests. MPI (**V***IST***A**) enables sites to query the MPI (Austin) for the: 1. assignment of ICN (i.e., Integration Control Number) and CMOR 2. inactivation of an ICN for a patient, and 3. known patient data on the MPI (Austin) Any updates to patient data are then sent to the MPI (Austin) and to sites where a patient has been seen. MPI (**V***IST***A**) also manages incoming and outgoing Change CMOR requests.
Message Segments	Each HL7 message is composed of segments. Segments contain logical groupings of data. Segments may be optional or repeatable. A [ ] indicates the segment is optional, the { } indicates the segment is repeatable. For each message category, there will be a list of HL7 standard segments and/or "Z" segments used for the message.
MPI Initialization	The process of initializing a site's Patient file with the Master Patient Index (MPI). Initialization synchronizes Patient file information (for active patients) with the MPI and identifies facilities where the patient has been treated. This process transfers the Integration Control Number (ICN), Coordinating Master of Record (CMOR), and Treating Facility list for each patient to the patient's record in the **V***IST***A** Patient file at all sites where the patient has been treated. It is also possible to initialize an individual patient to the MPI. This is done through menu options. The initial synchronization of patient file information (for active, shared patients) with the Master Patient Index and with the patient's treating facilities is an important step in the implementation of the MPI/PD software system.
Non-CMOR Sites	Sites that are not the CMOR for a given patient but which nevertheless have an interest in the patient.

Patient Demographics (PD)	Identifying descriptive information about a patient. With MPI/PD, key demographic information for a patient is the same at each of the treating facilities where that patient is seen.
Patient Merge (also see Kernel Toolkit, Duplicate Record Merge: Patient Merge)	Patient Merge is a **V*IST*A** application that provides an automated method to eliminate duplicate patient records within the **V*IST*A** database [i.e., the **V*IST*A** Patient file (#2)]. It consists of three steps: 1. search for potential duplicate record pairs, 2. review, verification, and approval of those pairs, and 3. the merge process
Pseudo-SSNs	False Social Security Numbers that are calculated internally to **V*IST*A** and can not be mistaken for valid SSNs because they end with a "P". Updating active patients' missing or pseudo-SSNs is necessary in order to interface properly with the MPI.
Registration Process	During a registration, if a patient does not have an ICN, the patient is checked against the entries in the MPI to determine if the patient already is established or needs to be added. The MPI may return a list of patients who are possible matches. If the patient is truly new and there are no potential matches in the MPI, the MPI will assign an ICN and assigns the requesting site as the CMOR. If the patient is already known at the MPI, the ICN and CMOR is returned and an HL7 message is sent to the CMOR to add this new facility to the list of Treating Facilities for this patient. At the CMOR site, A04 Registration HL7 messages are sent to the MPI and all sites where the patient is known. These messages update the date of last activity and any changes to the descriptive data. At a non-CMOR site, an A04 Registration HL7 message is sent to the Coordinating Master of Record.
Score Calculation Date	Date when the CMOR Activity Score was last calculated. This is a new field in the Patient file (#2).
Segment Table Definitions	For each segment, the data elements are described in table format. The table includes the sequence number (SEQ), maximum length (LEN), data type (DT), required or optional (R/O), repeatable (RP/#), the table number (TBL #), the element name, and the **V*IST*A** description.
Sensitive Patient	A patient whose record contains certain information, such as political figures, employees, patients with a particular eligibility or medical condition may be deemed sensitive by a facility. If a shared patient is flagged as sensitive at one of the treating sites, a bulletin is sent to the RG CIRN DEMOGRAPHIC ISSUES mail group at each subscribing site telling where, when, and by whom the flag was set. Each site can then review whether the circumstances meet the local criteria for sensitivity flagging.
Shared Patient	A patient that is registered for care at more than one facility. The CMOR keeps the Treating Facility List and Subscription List updated every time a new

	facility where the patient has been seen identifies itself to the MPI. The CMOR then broadcasts the updated lists to all the other facilities that share this patient.
Subscriber	A subscriber is an entity that receives updates to a patient's data from other sites. Treating facilities have a subscription with an infinite expiration date implied. They may not deactivate from descriptive subscriptions. A treating facility, upon registration of a patient known elsewhere, automatically becomes a subscriber. Descriptive subscribers receive changes to patient demographic information including CMOR changes and updates to the subscription and treating facilities lists.
Subscription	The process used to identify the sites that will receive data updates for a patient.
Synchronized Patient Data	Key descriptive fields in the patient file that are updated in all the descriptive subscriber's patient files whenever the fields are edited by a subscriber.
Treating Facility	Any facility where a patient has applied for care, or has been added to the local Patient file (regardless of VISN) is placed on the Treating Facility List. This list is part of the synchronized patient descriptive data. Treating Facilities receive data updates for shared patients. They may not deactivate their subscription to descriptive (i.e., patient demographic) data. Changes to patient descriptive data that are identified at a treating facility trigger a message to the Coordinating Master of Record. After review and acceptance, the CMOR broadcasts an update message to all treating facilities, subscribers, and the MPI.
Treating Facility List	A table of institutions at which the patient has received care. This list is used to create subscriptions for the delivery of patient clinical and demographic information between sites.
Trigger Events	An activity in **V*IST*A** that creates HL7 messages.
Z Segments	An HL7 custom segment format. Z segments are used when the standard HL7 V. 2.3 does not meet the needs to share data. Each Z segment must be approved by the HL7 Administrator within Technical Services.

Appendix A - MPI/PD Business Rules

Start-up (only)
A patient's CMOR will be the first treating site that identifies the patient to the MPI.

Duplicate ICNs
More than one patient in a single Patient file (#2) can not have the same ICN. For example, let's say that the MPI returned an ICN to your local Patient file for a patient who previously did not have one assigned. If that same ICN is currently assigned to a different patient in your local Patient file, an exception message is sent to the MPI EXCEPTIONS mail group, and the ICN, CMOR, and treating facilities list is not updated for this new patient.

CMOR changes
Receiving site must be a treating facility (patient must be registered there).

Update Messages
Descriptive data update messages are broadcast by the CMOR.

Institution File
A site can be in only one VISN at a time. A record in the Institution file can not have two parents of the same type.

A record in the Institution file cannot be a child and have children of its own.

MPI (Austin)
The MPI assigns national ICN and initial CMOR (first site to identify the patient to the MPI). The MPI accepts update messages only from the CMOR. The MPI maintains a copy of the treating facilities list but not the subscription list. Subscriber messages are not sent to the MPI.

Treating Facilities
Broadcast messages to add a treating facility for a patient will come only from the Coordinating Master of Record (CMOR). The site requesting to be added sends a message to the CMOR, the CMOR broadcasts an A08 update message.

Subscriptions
All Subscribers to clinical data will be subscribers to descriptive data. A clinical subscriber can change to a descriptive category. Subscribers that are not designated as treating facilities may deactivate their subscription using an expiration date. Treating Facilities will be clinical subscribers unless they request descriptive only. Treating facilities may not deactivate from descriptive subscriptions.

Sites can only subscribe/unsubscribe themselves except in cases of automatic subscription (treating facility).

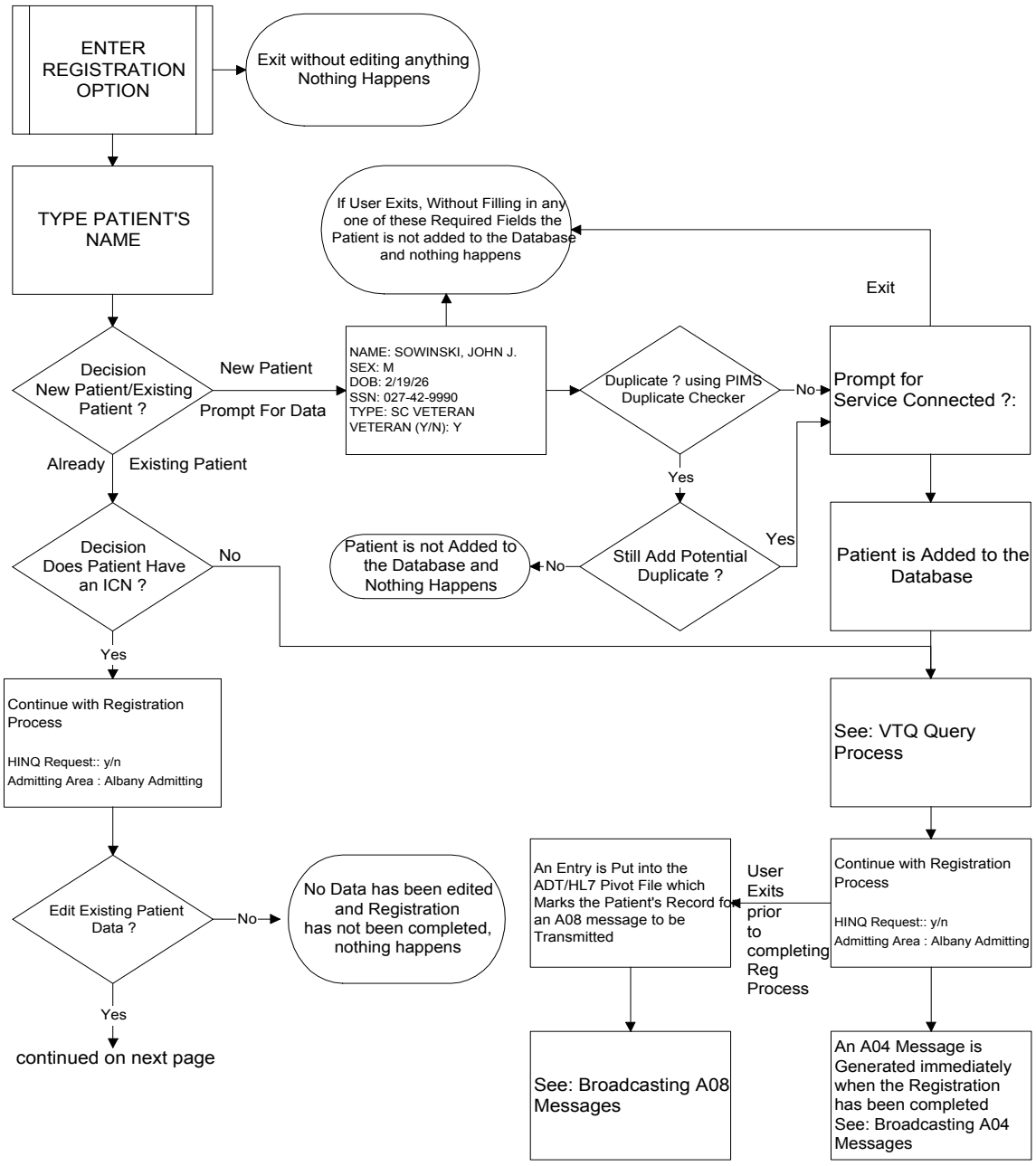
Descriptive subscription lists will be synchronized.

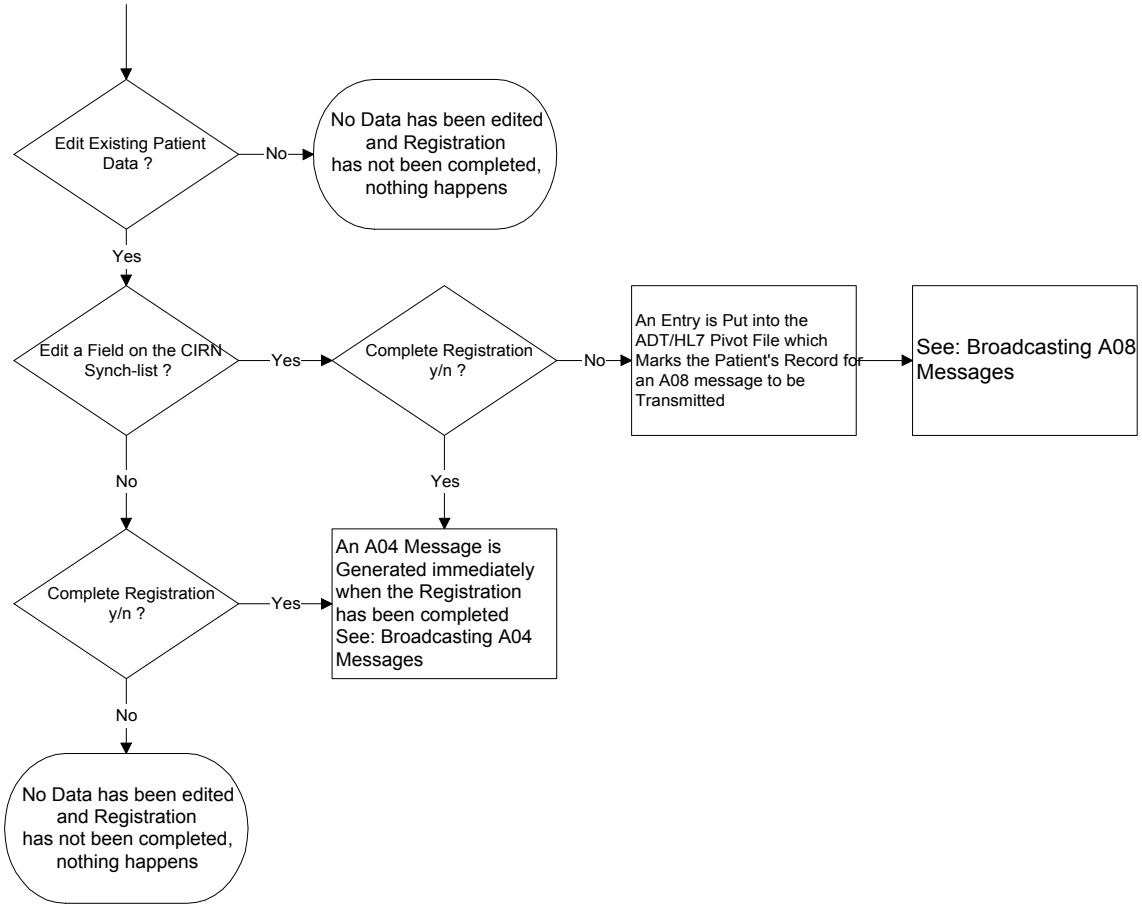
Patient Sensitivity
If a shared patient is flagged as sensitive at one of the treating sites, a bulletin is sent to the RG CIRN DEMOGRAPHIC ISSUES mail group at each subscribing site telling where, when, and by whom the flag was set. Each site can then review whether the circumstances meet the local criteria for sensitivity flagging. If the site chooses to change the patient to a sensitive status, the option to do so would be used and then a bulletin would be sent to the mail group established in the PIMS package for notifying users of a sensitive patient change.

Date of Death
A patient may be entered as deceased at a treating facility. If a shared patient is flagged as deceased, a bulletin is sent to the RG CIRN DEMOGRAPHIC ISSUES mail group. The bulleting tells where the deceased date was entered and the date the patient died. Each site can then review whether the patient should be marked as deceased at their site.

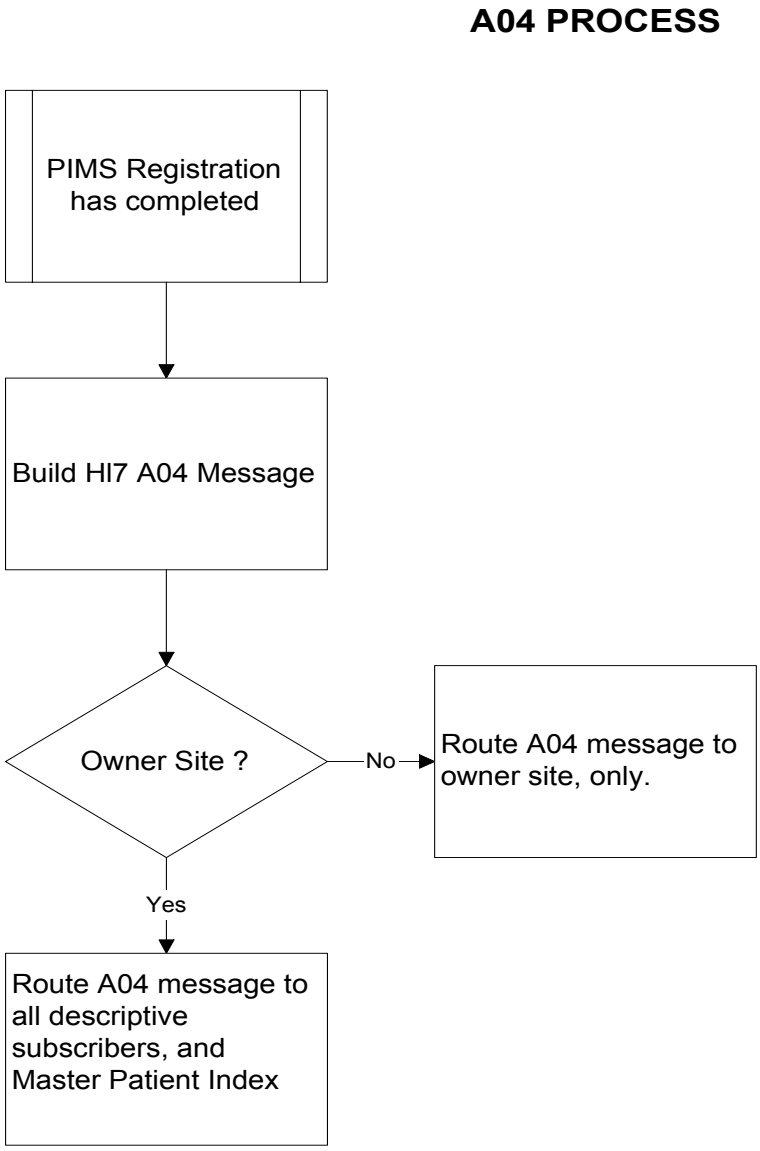
Appendix B - MPI/PD Process Diagrams

Data flow diagram of the Registration Process (includes MPI/PD enhancement):

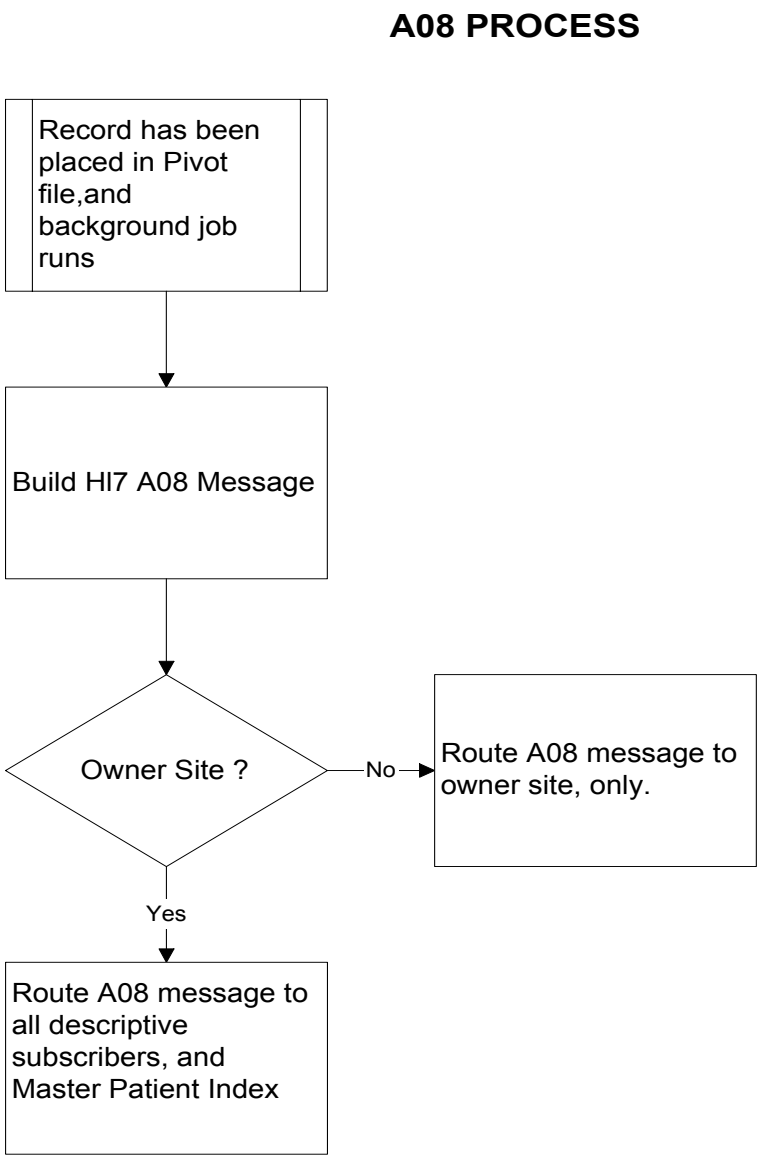



Edit Existing Patient Data ?
No
No Data has been edited and Registration has not been completed, nothing happens
Yes
Edit a Field on the CIRN Synch-list ?
Yes
Complete Registration y/n ?
No
An Entry is Put into the ADT/HL7 Pivot File which Marks the Patient's Record for an A08 message to be Transmitted
See: Broadcasting A08 Messages
No
Yes
Complete Registration y/n ?
Yes
An A04 Message is Generated immediately when the Registration has been completed See: Broadcasting A04 Messages
No
No Data has been edited and Registration has not been completed, nothing happens

Data flow diagram of the A04 Broadcast Process:

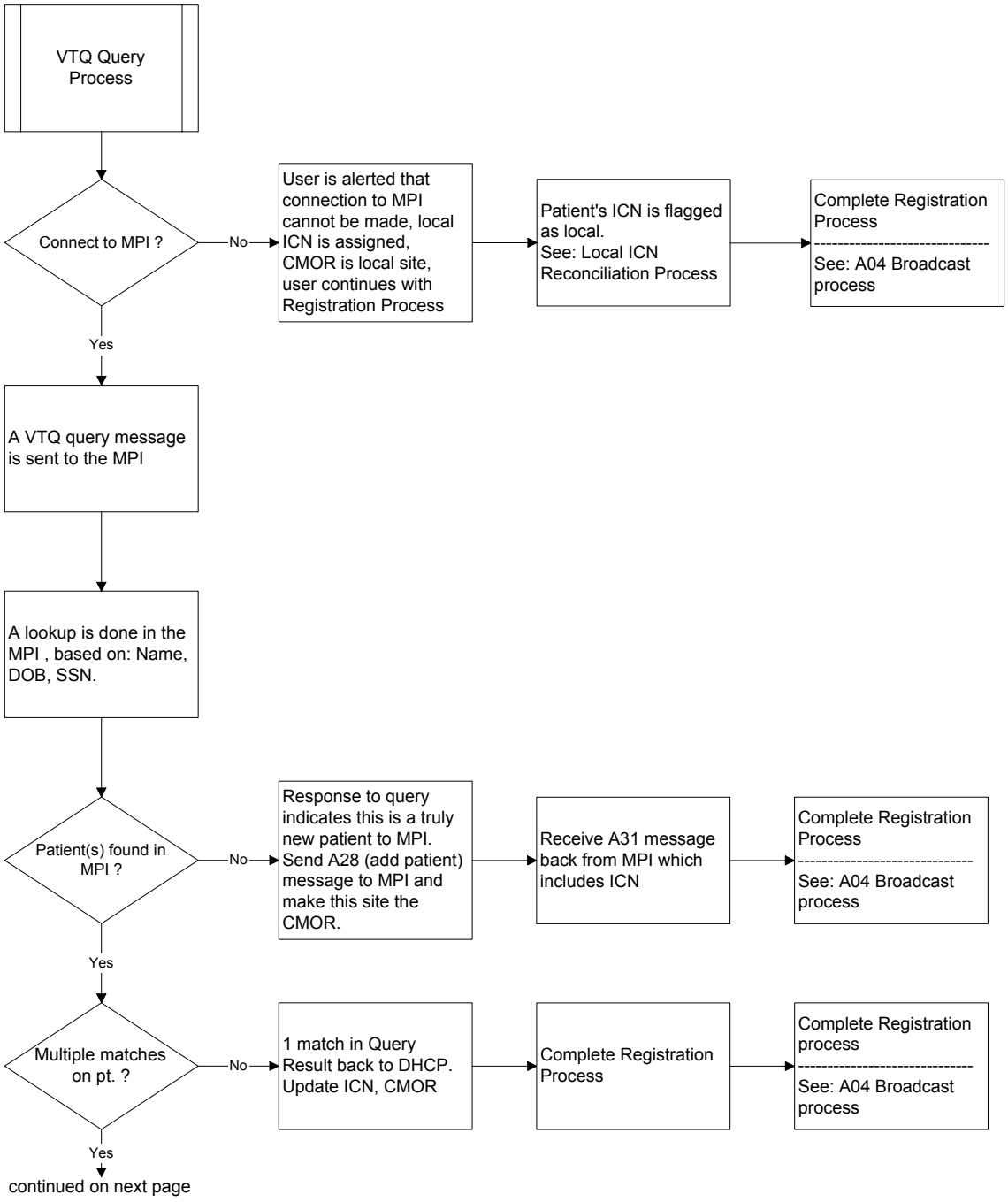


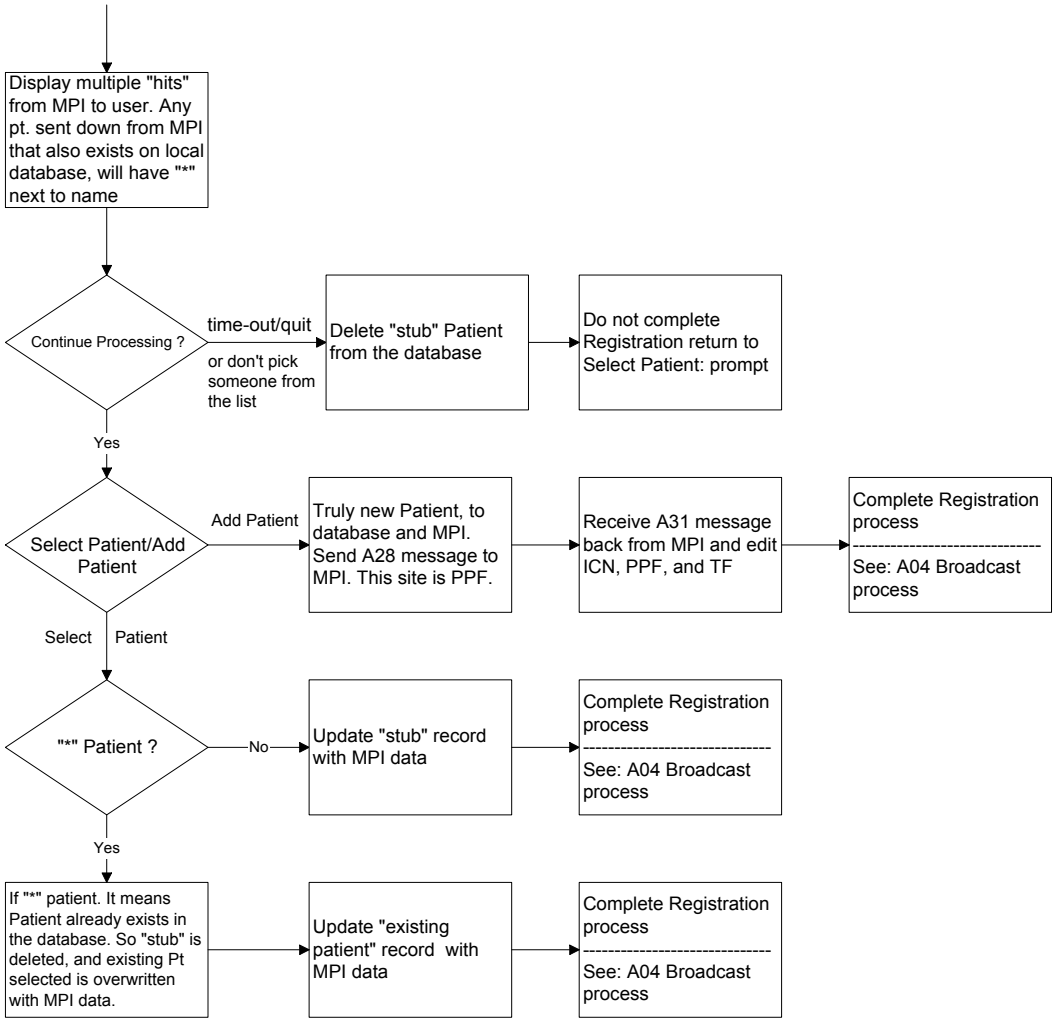
Data flow diagram of the A08 Broadcast Process:



Data flow diagram of the MPI/PD VTQ Query process:

Cirn VTQ Query Process




Display multiple "hits" from MPI to user. Any pt. sent down from MPI that also exists on local database, will have "*" next to name
Continue Processing ?
time-out/quit
or don't pick someone from the list
Delete "stub" Patient from the database
Do not complete Registration return to Select Patient: prompt
Yes
Select Patient/Add Patient
Add Patient
Truly new Patient, to database and MPI. Send A28 message to MPI. This site is PPF.
Receive A31 message back from MPI and edit ICN, PPF, and TF
Complete Registration process
See: A04 Broadcast process
Select Patient
"*" Patient ?
No
Update "stub" record with MPI data
Complete Registration process
See: A04 Broadcast process
Yes
If "*" patient. It means Patient already exists in the database. So "stub" is deleted, and existing Pt selected is overwritten with MPI data.
Update "existing patient" record with MPI data
Complete Registration process
See: A04 Broadcast process

Appendix C - TCP/IP Set-up

Further information on this topic may be found at *http://vista.med.va.gov/hl7/archive/1.6/hl71_6p19.pdf.*

UCX Setup for DSM/VMS sites

The UCX service may be used at any DSM site (recommended) or a Single Threaded Mumps Listener (see instructions below).

```
User Account
============

Username: HLSEVEN                           Owner:  HEALTH LEVEL SEVEN
Account:                                    UIC:    [50,45] ([HLSEVEN])
CLI:      DCL                               Tables: DCLTABLES
Default:  DSAx:[HLSEVEN]
LGICMD:   NL:
Flags:  DisCtlY Restricted Captive
Primary days:   Mon Tue Wed Thu Fri
Secondary days:                      Sat Sun
Primary   000000000011111111112222  Secondary 000000000011111111112222
Day Hours 012345678901234567890123  Day Hours 012345678901234567890123
Network:  ##### Full access ######            ##### Full access ######
Batch:    -----  No access  ------             -----  No access  ------
Local:    -----  No access  ------             -----  No access  ------
Dialup:   -----  No access  ------             -----  No access  ------
Remote:   -----  No access  ------             -----  No access  ------
Expiration:      (none)      Pwdminimum:  6   Login Fails:     1
Pwdlifetime:     (none)      Pwdchange:      (pre-expired)
Last Login:      (none) (interactive), 25-NOV-1996 15:28 (non-interactive)
Maxjobs:         0  Fillm:       500  Bytlm:      100,000
Maxacctjobs:     0  Shrfillm:      0  Pbytlm:           0
Maxdetach:       0  BIOlm:        18  JTquota:       1024
Prclm:           2  DIOlm:        18  WSdef:          300
Prio:            4  ASTlm:        24  WSquo:          500
Queprio:         0  TQElm:        10  WSextent:      2048
CPU:        (none)  Enqlm:      3000  Pgflquo:     100000
Authorized Privileges:
 NETMBX    OPER      SHARE     TMPMBX
Default Privileges:
 NETMBX    OPER      SHARE     TMPMBX


Directory and .COM File
=======================
Create directory DSAx:[hlseven] to serve as the home directory for HLSEVEN.
This directory will house the com file that is executed whenever a client
connects as well as a log file.

Directory DSAx:[HLSEVEN]
```

```
HLSEVEN.COM;7        25-NOV-1996 12:01:02.50
HLSEVEN.JOU;2         25-NOV-1996 10:06:35.68
HLSEVEN.LOG;30       25-NOV-1996 15:28:02.30

$!HLSEVEN.COM - MESSAGE SERVICE on the Alpha
$!--------------------------------------------------------------------
$ purge/keep=2 sys$login:*.*
$ user="HLSEVEN"               !Where to send the messages
$ set noon                             !Don't stop
$ set proc/priv=(share)          !Required to use the MBX device
$ x=f%trnlnm("sys$net")         !This is our MBX device
$!
$ write sys$output x            !This can be viewed in the log file
$ set nover                    !Don't pass this stuff to the output device
$!--------------------------------------------------------------------
$!   **Be sure this command line is correct for your system
$!   **and if access control is enabled, that this account has
$!   **access to this uci,vol and routine. The number 999 should be
$!   **replaced with the internal entry number if file 870 for this
$!   **Logical Link
$!
$ dsm/environ=MGRISC/uci=ISC/vol=ISC/data="''x'^2" EN^HLCSTCP
$!--------------------------------------------------------------------
```

<<editor's note: the 2 / noted here is the ien or name of the logical link for your site from the HL Logical Link file (#870)>>

```
$ logout/brief


UCX Service
===========
Use port 5000.

ISC6A1: ucx sho service hlseven/full
Service: HLSEVEN           State:     Enabled
Port:             5000     Protocol:  TCP             Address:  0.0.0.0
Inactivity:          5     User_name: HLSEVEN         Process:  HLSEVEN
Limit:              10     Active:      0             Peak:       1

File:         DSAx:[HLSEVEN]HLSEVEN.COM
Flags:        Listen

Socket Opts:  Rcheck Scheck
 Receive:            0     Send:              0

Log Opts:     None
 File:        not defined

Security
 Reject msg:  not defined
 Accept host: 0.0.0.0
 Accept netw: 0.0.0.0
```

```
Logical Link and LLP Parameters
==============================
Define your Logical Link and Lower Level Protocol parameters for
your new receiver. Be sure to set field CLIENT/SERVER to MULTI LISTENER.
HL Logical Link (file #870):

NODE: ISC-SF    <this will be the logical link for your site>
LLP PARAMETERS: SF-TCP-RECV <this will correspond to your site also>
 LLP ONLINE: NO                          STATE:
 TIME STOPPED:                            SHUTDOWN LLP ?:
 QUEUE SIZE: 10
 IN QUEUE BACK POINTER: 0                IN QUEUE FRONT POINTER: 0
 OUT QUEUE BACK POINTER: 0               OUT QUEUE FRONT POINTER: 0

HL Lower Level Protocol Parameters:

NAME: SF-TCP-RECV <corresponds to your site and the LLP Parameter in 870>
 LLP TYPE: TCP
 TCP/IP ADDRESS: 152.132.1.56 <this will correspond to your site's IP
address. This field should not be updated with out contacting NVS due to the
other sites having this address to allow for communication between
facilities.>
 TCP/IP PORT: 5000 <recommend by HL7 Team>
 CLIENT/SERVER: MULTI LISTENER <only for your link>
```

Single-Threaded Listeners

Single-threaded listener mode for TCP/IP messaging is available for all currently supported M operating systems:

- Caché on NT
- DSM for OpenVMS

To set up single-threaded listeners, simply define an entry in the HL Logical Link file for each single-threaded listener. No additional setup is required.

Logical Link Setup for Single-Threaded Listener

Using the Interface Workbench, create a Logical Link entry for the single-threaded listener. The following field settings are appropriate for single-threaded listeners:
LLP Type: TCP
TCP/IP address: DSM for OpenVMS: null; Caché for NT: IP address of listener system
TCP/IP Port: Port to listen on.
TCP/IP Service Type: SINGLE LISTENER
Persistent: Null
Startup Node: (set only for OpenVMS systems running dual TaskMan.)

```
HL-7 Interface Workbench Sep 03, 1998 13:16:55 Page: 15 of 27
Currently Defined
Logical Links
=============================================================================
(22) A6A LISTENER
LLP Parameter: A6A5000 TCP/IP Address: <NONE>
LLP Type: TCP (T) TCP/IP Port: 5000
```

```
Queue Size: <DEFAULT> TCP/IP Service Type: SINGLE LISTENER
Institution: <NONE> Persistent: <DEFAULT>
Domain: <NONE> Startup Node: <NONE>
Autostart: <DEFAULT>
```

How to Start and Stop the Single-Threaded Listener

To start single-threaded listeners, use the Start LLP option. Choose the Logical Link entry you defined for the listener. Typically you would run the link in the background. To stop the listener, use the Stop LLP option.

Multi-Threaded Listener Setup: Caché on NT

Kernel patch XU*8*78 provides a multi-threaded listener for TCP/IP messaging for Caché on NT systems.

Logical Link Setup

Using the Interface Workbench, create a Logical Link entry for the multi-threaded listener. The following field settings are appropriate for multi-threaded listeners for Caché on NT:
LLP Type: TCP
TCP/IP address: IP address of listener system
TCP/IP Port: (the port to listen on)
TCP/IP Service Type: MULTI LISTENER
Persistent: null
Startup Node: (set only for OpenVMS systems running dual TaskMan.)

```
HL-7 Interface Workbench Sep 03, 1998 13:16:55 Page: 15 of 27
Currently Defined
Logical Links
================================================================================
(23) A6A UCX LISTENER
LLP Parameter: A6A5000 TCP/IP Address: <NONE>
LLP Type: TCP (T) TCP/IP Port: 5000
Queue Size: <DEFAULT> TCP/IP Service Type: MULTI LISTENER
Institution: <NONE> Persistent: <DEFAULT>
Domain: <NONE> Startup Node: <NONE>
Autostart: <DEFAULT>
```

How to Start and Stop the Multi-Threaded Listener

To start the multi-threaded listener for Caché on NT systems, use the Start LLP option. Choose the Logical Link entry you defined for this listener. Typically you would run the link in the background. To stop the listener, use the Stop LLP option.

Appendix D - MPI/PD Event Queue

Introduction

The event queue feature consists of the Event Queue global, ^RGEQ(, and the Event Queue back ground job (daemon). Triggering events can come from a variety of sources. These include demographic and clinical subscription control updates. These updates may generate an HL7 message to a remote source (i.e. subscription or Coordinating Master Of Record (CMOR) request to remote facilities).
The MPI/PD Event Queue must be started and running for several types of messaging updates to occur. These include Subscription Control, Coordinating Master of Record Request, and others.

Activities that use the MPI/PD Event Queue for transmission will place a stub record into the Event Queue global. This is a temporary storage area for these records. As the events in the Event Queue are processed, these records are removed from the Event Queue global. When triggering events place a "stub" record in the Event Queue global control is returned immediately to the **V*IST*A** software application or option to minimize the impact on the triggering software application or its users.

MPI/PD Event Queue Structure

The format of the Event Queue global entries is as follows:

^RGEQ(type,stub_record_ien[,returned_error_code,event_protocol]) = ""

The "type" is the text name of the event type from CIRN Event Association file (#995). Some examples of these are:

Event Type	Event Name
CH	Laboratory Chemistry Result
CH_BL	Historical Back Load of Chemistry Result Data
CMOR REQUEST	CMOR Request
RX	Outpatient Prescription Entry or Edit
RX_BL	Historical Back Load of Outpatient Pharmacy Data
SCN_REQ	Subscription Request

The CIRN Event Association file (#995) also contains the name of the routine that will be invoked to process each type of event.

The "stub_record_ien" is the internal record entry number for the record in the file that caused the event. Examples of these are the internal entry number of a prescription from the Prescription file (#52), or an entry in the PTF file (#45) for a patient who was discharged.

The "returned_error_code" and "event_protocol" are optional parameters.

The "returned_error_code" is the error that will be returned if HL7 is unable to generate a message for transmission.

The "event_ protocol" is the internal number of the entry in the Protocol file (#101). Some messages are generated by protocols and other messages are generated by routines.

Managing the MPI/PD Event Queue

Starting the MPI/PD Event Queue

The MPI/PD Event Queue options will be installed during the installation of MPI/PD.

Upon installation the MPI/PD Event Queue is inactive. To activate it several steps must be taken.

1. First, the MPI/PD Event Queue must be started. This is accomplished by using the Start MPI/PD Event Queue [RGEQ START] option on the MPI/PD Event Queue Manager menu [RGEQ MGR]. If this is not done, the Event Queue global will not accept the creation of stub entries to be processed.

   This will set the top-level entry in the Event Queue global (^RGEQ("ASTOP")) to NO. This is correct. The "ASTOP" subscript may be viewed as "Asked to Stop". If this entry is set to YES, the MPI/PD Event Queue will not accept the creation of stub messages for processing.

   In addition to setting the Event Queue global to accept entries, executing this option will also cause the Event Queue daemon (background routine) to be tasked to run immediately. The Event Queue daemon will check the Event Queue global for entries that need to be processed. If entries exist, and all required parameters are set to allow processing, the daemon will generate a new tasked background (subdaemon) job for each event type in the Event Queue global. Once each routine finishes with its event type it will quit. The Event Queue daemon will quit if there are no entries to be processed in the Event Queue global. TaskManager will restart it at its regularly scheduled time.

2. Second, the Send PIMS HL7 V2.3 Messages field (#391.7013) in the MAS Parameters file (#43) must be set to SEND. This field can be set to STOP (0), SEND (1), or SUSPEND (2). If this field is set to anything other than SEND, entries may still be created in the Event Queue global but they will not be processed by the Event Queue daemon.

3. The MPI/PD Event Queue Autostart option [RGEQ AUTOSTART] should be tasked to run with Special Queueing set to Startup Persistent. This will restart the Event Queue Daemon to check for Event Queue entries that require processing. This restarted job will stop if the Event Queue daemon is already running.

Other system functions that may effect the MPI/PD Event Queue

There are several other system tasks that may effect being able to start or stop the MPI/PD Event Queue.

1. TaskManager must be running. If TaskManager is not running or has a backlog of tasks, the Event Queue daemon will continue to task jobs for new events but the jobs may not start in a timely manner.

2. The HL7 filers must be running. These may be monitored using the appropriate options on the V. 1.6 HL7 Main Menu [HL MAIN MENU]. If the filers are not running, entries will not be placed into the

Event Queue global and updates to external demographic and clinical subscribers will not be processed. In addition, the HL7 Logical Links for external subscribing sites (including the Master Patient Index) must be on line for messages to them to be processed.

Stopping the MPI/PD Event Queue

There may be circumstances when the Event Queue must be stopped. There are several steps required to do this.

1. The MPI/PD Event Queue Autostart [RGEQ AUTOSTART] option must be unscheduled using the appropriate TaskManager option. If it is not unscheduled, TaskManager will restart the Event Queue daemon at its scheduled time, reset the Event Queue global to accept new entries for processing, and begin processing the existing entries in the Event Queue global once again. This should be done before proceeding to step 2.

2. The MPI/PD Event Queue must be stopped if you wish to prevent new entries from being added to the Event Queue global for processing. Existing entries in this global will not be removed and will remain until the Event Queue daemon restarts and processes the entries. Simply stopping the Event Queue by using the Halt MPI/PD Event Queue option [RGEQ STOP] on the MPI/PD Event Queue Manager [RGEQ MGR] will not stop the processing of Event Queue entries. If the Event Queue daemon is currently running or MPI/PD Event Queue Autostart option is still scheduled to run the entries in the Event Queue global will continue to be processed.

3. The Send PIMS HL7 V2.3 MESSAGES field (#391.7013) in the MAS Parameters file (#43) should be set to STOP (0) or SUSPEND (2). This will also prevent entries in the Event Queue global from being processed.

   The Event Queue should only be stopped in extreme situations and should be restarted, as described above at the earliest moment possible.

   There also may be instances where it may be necessary to stop the processing of existing entries in the MPI/PD Event Queue but the accumulation of entries in the Event Queue global is also desirable. To do this:

4. The MPI/PD Event Queue Autostart [RGEQ AUTOSTART] option must be unscheduled using the appropriate TaskManager option. If it is not unscheduled, TaskManager will restart the Event Queue daemon at its scheduled time, reset the Event Queue global to accept new entries for processing, and begin processing the existing entries in the Event Queue global once again. This should be done before proceeding to step 2.

5. Stop the Event Queue daemon and subdaemon jobs using the appropriate supplied system utility (i.e., FORCEX, etc.). The Event Queue daemon job (^RGEQDMN) must be stopped first. Then stop the Event Queue subdaemon jobs (^RGEQSUB) in the same manner. Doing this out of sequence will cause the Event Queue daemon to start new subdaemons for the jobs just stopped.

Appendix E - Exception Messages and Bulletins

Bulletins

Several bulletins are sent to the RG CIRN DEMOGRAPHIC ISSUES mail group. These are designed to alert Patient Administration of problems related to information processing. They are:

Patient-related bulletins:
Missing Data
Remote Sensitivity Indicated
Remote Date of Death Indicated

Master File Update bulletins:
Patient Not Found (Treating Facility type)
Inconsistent Data (Treating Facility type)

Patient Related Bulletins

These messages concern any changes in demographic information (such as Marital Status, address, etc.) for a particular patient. All incoming patient-related messages go through the same validation steps.

1. Check for Missing Data

The first step is a check on the incoming HL7 message to make sure that certain required fields are present. These fields are: Name, Social Security Number (SSN) (unless pseudo or not available), Date of Birth (DOB), and Integration Control number (ICN). If one of these fields is missing or null, a Missing Data bulletin is generated.

Note: This bulletin should be very rare since Name, SSN, and DOB are required fields that must be entered in order to add the patient to the database at the sending site. The Integration Control Number is provided by the MPI when the patient is initially processed.

```
Subj: MPI/PD - MISSING DATA  [#93351] 22 Apr 98 11:16  43 Lines
From: MPI/PD PACKAGE  in 'IN' basket. Page 1
---------------------------------------------------------------------

The MPI/PD Package has received a message from:
ALLEN PARK, MI --> Site Number: 553
This message was missing required data

FIELD: .01 = BURNETT,COREL
FIELD: .02 = FEMALE
FIELD: .03 = 2500501
FIELD: .05 = UNKNOWN
FIELD: .08 = UNKNOWN/NO PREFERENCE
FIELD: .09 = 887438885
FIELD: .097 = 2980422
FIELD: .111 = TESTING NOT2
FIELD: .1112 = 99999
FIELD: .112 = "@"
FIELD: .113 = "@"
FIELD: .114 = ROUND LAKE
```

```
FIELD: .115 = NEW YORK
FIELD: .117 = CATTARAUGUS
FIELD: .131 = "@"
FIELD: .132 = "@"
FIELD: .211 = "@"
FIELD: .219 = "@"
FIELD: .2403 = "@"
FIELD: .301 = NO
FIELD: .302 = "@"
FIELD: .31115 = "@"
FIELD: .323 = "@"
FIELD: .351 = "@"
FIELD: .361 = EMPLOYEE
FIELD: .3612 = "@"
FIELD: .3615 = "@"
FIELD: 391 = EMPLOYEE
FIELD: 991.01 = "@"
FIELD: 991.02 =
FIELD: 991.03 = ALBANY, NY
FIELD: 1901 = NO
FIELD: DFN = 7171322
FIELD: FLD = .112;.113;.111;
FIELD: SENDING SITE = 553
FIELD: SENSITIVITY = "@"
FIELD: SENSITIVITY DATE = "@"
FIELD: SENSITIVITY USER = "@"
FIELD: SITENUM = 500
```

2. Do a match on SSN, and Coordinating Master Record Site (CMOR)

The second step is the check on the incoming HL7 message to insure that certain data in the incoming message matches the information for the patient at the receiving system. This insures that this, in fact, is the same patient. Data fields that are checked are the Integration Control number (ICN) and the CMOR. If these fields do not match, an Inconsistent Data bulletin is generated. Also, the system compares the SSN; if they do not match, the system will still process the HL7 message and update the patient. It will also add the patient to the exception list and fire this bulletin.

```
Subj: MPI/PD - INCONSISTENT DATA  [#93364] 23 Apr 98 14:23  51 Lines
From: MPI/PD PACKAGE  in 'IN' basket. Page 1
---------------------------------------------------------------------------

The MPI/PD Package has received a message from:
ALBANY, NY --> Site Number: 500
This message contains data that is inconsistent
with your site's data.

Local Name: BURNETT,COREL
Local SSN: 887438885
Local ICN: 1000304603
Local CMOR: BATAVIA, NY
-----------------------------------------------------
Remote Data

FIELD: .01 = BURNETT,CARAL
FIELD: .02 = FEMALE
FIELD: .03 = 2340512
FIELD: .05 = DIVORCED
```

```
FIELD: .08 = ISLAM
FIELD: .09 = 887438885
FIELD: .097 = 2980423
FIELD: .111 = NANCY STREET SENS
FIELD: .1112 = "@"
FIELD: .112 = "@"
FIELD: .113 = "@"
FIELD: .114 = "@"
FIELD: .115 = "@"
FIELD: .117 =
FIELD: .131 = "@"
FIELD: .132 = "@"
FIELD: .211 = "@"
FIELD: .219 = "@"
FIELD: .2403 = "@"
FIELD: .301 = NO
FIELD: .302 = "@"
FIELD: .31115 = "@"
FIELD: .323 = "@"
FIELD: .351 = "@"
FIELD: .361 = EMPLOYEE
FIELD: .3612 = "@"
FIELD: .3615 = "@"
FIELD: 391 = EMPLOYEE
FIELD: 991.01 = 1000304603
FIELD: 991.02 = 842887
FIELD: 991.03 = ALBANY, NY
FIELD: 1901 = NO
FIELD: DFN = 7169753
FIELD: FLD = .111;
FIELD: SENDING SITE = 500
FIELD: SENSITIVITY = "@"
FIELD: SENSITIVITY DATE = "@"
FIELD: SENSITIVITY USER = "@"
FIELD: SITENUM = 500
```

3. Remote Sensitivity Indicated

Now that we know for sure that we are in fact dealing with the correct patient, the system checks the incoming HL7 message to see if the patient is marked as a "Sensitive" patient at the sending site, but not at the receiving site. If this is true, a Remote Sensitivity Indicated bulletin is generated. This is a clue that you may wish to mark the patient's record as "Sensitive" at the receiving site.

```
Subj: Remote Sensitivity Indicated  [#93001] 11 Mar 98 13:18  8 Lines
From: MPI/PD PACKAGE  in 'IN' basket. Page 1  **NEW**
------------------------------------------------------------------------

The MPI/PD Package has received a message from:
ALBANY, NY --> Site Number: 500

This message indicates that Pt. BURNETT,CARAL is flagged as Sensitive at
the other facility but is not flagged as Sensitive at your facility.

Remote Patient SSN:xxxxxxxxxxxxxx
Remote User Who Flagged the Pt as Sensitive: ADPAC,ANNE
Date/time remote user Flagged Pt Sensitive:  Feb 04, 1998@13:38
```

4. Remote Date of Death Indicated

Next, the system checks the incoming HL7 message to see if the patient is marked as deceased at the sending site. If this is true, a Remote Date of Death Indicated bulletin is generated. The bulletin is generated when the remote site has a date of death and the subscribing site does not and also when the remote site has a date of death that is different from the subscribing site's date of death. The receiving site can then review whether to mark the patient as deceased at their site.

The following message is displayed when the remote site has a date of death and the subscribing site does not.

```
Subj: Remote Date of Death Indicated
From: MPI/PD PACKAGE  in 'IN' basket
---------------------------------------------------------------------------
The MPI/PD Package has received a message from:
MIAMI --> Site Number: 546546

This message indicates that patient DOE,JOHN
has a date of death at the other facility but not at
your facility.

Date of Death from other facility:  Jun 11, 1999
```

The following message is displayed when the remote site has a date of death that is different from the subscribing site's date of death.

```
Subj: Remote Date of Death Indicated
From: MPI/PD PACKAGE  in 'IN' basket
---------------------------------------------------------------------------
The MPI/PD Package has received a message from:
BAY PINES, FL --> Site Number: 516

This message indicates that patient DOE,JOHN
has a different date of death at the other facility than at
your facility.

Date of Death from other facility:  Jun 04, 1999
Date of Death at your facility:  Jun 11, 1999
```

Exception Messages

During the processing of HL7 messages for the MPI and CMOR options, it is possible for MPI/PD HL7 exception (problem) messages to be generated. These messages serve to notify IRM and/or Patient Administration personnel of dilemmas or situations that have been encountered. Listed below are the mail groups to which these exception messages are sent, depending on the nature of the problem. They are listed by mail group name, type of problem, and recommended mail group members.

Members of the RG CIRN DEMOGRAPHIC ISSUES mail group are automatically notified of problems relating to data. It is recommended that Patient Administration personnel (i.e., Automated Data Processing Application Coordinator (ADPAC) and/or Coordinators, etc.) be made members of this mail group.

There are a number of MPI/PD exception messages that are technical in nature, involving problems with HL7 messages, multiple sites, or ones that require a NOIS to be logged. These are sent to the MPIF EXCEPTIONS Handler on the Austin MPI. They will be resolved by MPI/PD team members or by NVS.

MPI/PD Exception Handling option

To access the MPI/PD Exception Handling option, start at the MPI/PD Patient Admin Coordinator Menu [RG ADMIN COORD MENU] and choose MSG Message Exception Menu [RG EXCEPTION MENU].

```
Select MPI/PD Master Menu Option: CORD  MPI/PD Patient Admin Coordinator Menu


  SP     Site Parameters Edit for CMOR
  CMOR   CMOR User Menu ...
  ADU    MPI/PD Patient Admin User Menu ...
  LOG    Patient Audit Log Reports ...
  MPI    Master Patient Index Menu ...
  MSG    Message Exception Menu ...
  RPT    Management Reports ...

Select MPI/PD Patient Admin Coordinator Menu Option: MSG Message Exception
Menu


         View Potential Match Patient
         MPI/PD Exception Handling
         Patient MPI/PD Data Inquiry
         Remote Patient Data Query Menu…


Select Message Exception Menu Option: MPI/PD Exception Handling
```

Upon entering the option, you will be told when the last purge took place and will be asked if you would like to run the purge now. If you choose to purge, you will have to wait a few minutes before using the MPI/PD Exception Handling option.

The purge removes duplicate entries, resolved entries over 30 days old, and entries for patients with names beginning with "ZZZ" from the CIRN HL7 Exception Log file (#991.1). Regular purging provides you with the most up-to-date information on the List Manager screen. If you feel that waiting for the

purge to complete is too time consuming, you can ask your IRM service to schedule the background job MPI/PD Exception Purge [RG EXCEPTION PURGE] via TaskMan to run once a week at an off-hours time that does not conflict with backups.

The MPI/PD Exception Handling [RG EXCEPTION HANDLING] option allows you to process the folowing exceptions:

Required Field(s) Date of Birth or Name missing for patient sent to MPI
SSN Match Failed
Name Doesn't Match
Death Entry on MPI not in **V***IST***A**
Death Entry on **V***IST***A** not in MPI
Death Entries on MPI and **V***IST***A** DO NOT Match
Potential Matches Returned

The option gives you a list of exceptions that have not yet been processed. You can sort the list by date (default), by patient name, or by exception type. You can also choose to view only those of a selected exception type. The first three actions merely change the order that the patients are listed on the screen.

```
MPI/PD EXCEPTION HANDLING     Aug 01, 2001 10:13:11        Page:    1 of  1
MPI/PD Exception Handling

   Patient                SSN        Date Rec'd     Exception
 1  SERIOUS,SAM          111111111   11/02/99    SSN Match Failed
 2  RUGGED,ROBERT        222222222   11/02/99    SSN Match Failed
 3  MERRY,MARY           333333333   11/02/99    SSN Match Failed
 4  MERRY,MARY           333333333   11/02/99    Required field(s) Date of
 5  JOLLY,JAMES A        444444444   11/02/99    Required field(s) Date of
 6  CJOLLY,JAMES B       555555555   11/02/99    Name Doesn't Match
 7  JOLLY,JAMES B        555555555   11/02/99    Potential Matches Returne
 8  BURLY,BENJAMIN       666666666   11/02/99    Potential Matches Returne
 9  ROWDY,ROBERT         777777777   11/02/99    Death Entry on Vista not


         Enter ?? for more actions
SD  Sort Exceptions by Date             VT  View Selected Exception Type
SN  Sort by Patient Name                SE  Select Exception
ST  Sort by Exception Type

Select Action:Quit// VT   Select Exception Type to View
Enter an exception type to view: SSN Match Failed
```

VT Select Exception Type to View

The VT Select Exception Type to View action allows you to see only those of the exception type that you choose.

```
MPI/PD EXCEPTION HANDLING     Aug 01, 2001 10:13:11        Page:    1 of  1
MPI/PD Exception Handling

   Patient              SSN        Date Rec'd      Exception
 1  SERIOUS,SAM          111111111   11/02/99    SSN Match Failed
 2  RUGGED,ROBERT        222222222   11/02/99    SSN Match Failed
 3  MERRY,MARY           333333333   11/02/99    SSN Match Failed


     Enter ?? for more actions
SD  Sort Exceptions by Date               VT  Select Exception Type to View
SN  Sort by Patient Name                  SE  Select Exception
ST  Sort by Exception Type
Select Action:Quit// <RET>
```

SE Select Exception

Using the SE Select Exception action to select a specific exception brings you to a screen with more detailed information on the exception as well as the actions to perform Patient Audit, Patient Inquiry, Hinq Inquiry, MPI Display Only Query, Single Patient Initialization to the MPI, Edit Patient Data, Treating Facility Inquiry, and Update Status to Processed.

```
MPI/PD EXCEPTION HANDLING     Aug 01, 2001 10:13:11        Page:    1 of  1
MPI/PD Exception Handling

   Patient              SSN         Date Rec'd     Exception
 1  SERIOUS,SAM          111111111   11/02/99    SSN Match Failed
 2  RUGGED,ROBERT        222222222   11/02/99    SSN Match Failed
 3  MERRY,MARY           333333333   11/02/99    SSN Match Failed



        Enter ?? for more actions
SD  Sort Exceptions by Date               VT  Select Exception Type to View
SN  Sort by Patient Name                  SE  Select Exception
ST  Sort by Exception Type
Select Action:Quit// SE   Select Exception
Select :  (1-3): 1
```

```
MPI/PD EXCEPTION HANDLING     Aug 01, 2001 10:13:11        Page:    1 of  1
MPI/PD Exception Handling

   Exception Data
 1   Name:   SERIOUS,SAM
 2    SSN:   111111111
 3    DOB:   AUG 22,1941
 4    DFN:   2
```

```
 5    ICN:   1001111111
 6    Date of Death:
 7   Exception Type:     SSN Match Failed
 8   Exception Date:     Nov 02, 1999
 9   Exception Status:   NOT PROCESSED


         Enter ?? for more actions
AUD Patient Audit      DO  MPI Display Only Qry     UPD Update to Processed
PI  Patient Inquiry    SPI Single Patient Init      DI  MPI/PD Data Inquiry
HI  Hinq Inquiry       ED  Edit Patient Data        NT  Edit Note
Select Action:Quit// <RET>
```

This screen offers several actions that allow you to easily check patient data and resolve exceptions without leaving the Exception handling option.

AUD	The report prints the patient name and DFN, date/time the field was edited, the user who made the change, the field edited, the old value, and the new value. The right margin for this report is 80.
PI	Patient Inquiry is the standard Patient Inquiry option.
HI	Hinq Inquiry sends a Hinqrequest to the Hinq Suspense file. Sites using HINQ Inquiry within the Patient Data Review [VAFC EXCEPTION HANDLER] or MPI/PD Exception Handling [RG EXCEPTION HANDLING] options, should be sure that the USE HINQ INQUIRY? (#17) field in the MAS Parameters file (#43) is set to YES.
DO	MPI Display Only Query displays the information that is on the MPI for a patient.
SPI	Single patient Init to MPI allows you to initialize the patient to the MPI to get a national ICN.
ED	Edit Patient Data allows you to edit certain of your data on the patient.
UPD	Update Status to Processed changes the status of the exception to processed and removes it from the list. It is only used for resolving the three Death entry exceptions.
DI	MPI/PD Data Inquiry allows you to query any facility at which a selected patient has been seen, check the query, and display the remote patient data that is returned from that site.
NT	Edit Note allows you to enter a note.

When the exception has been processed, meaning that you have verified data, corrected where necessary, and contacted the Coordinating Master of Record (CMOR) site if necessary, then depending on the exception, use either the Single Patient Init to the MPI, or Update the Status to Processed action and the exception will no longer appear on the exception list. In general, Single Patient Init to MPI is used if the patient currently has a locally assigned ICN or no ICN while Update Status to Processed would be used if the patient already has a nationally assigned ICN. To determine the type of ICN, use VA FileMan to look at the Integration Control Number (national) and Locally Assigned ICN (local) fields in your Patient file (#2).

NOTE: When using the Single Patient Init to MPI action, you may receive a list of possible matches to your patient. Sometimes a number of these are obviously the same patient. If you feel that **more than one** of the choices presented matches your patient, **do not** initialize your patient to the MPI at this time. Please log a NOIS. This will allow the MPI/PD team to clean up the MPI duplicates. If your patient appears to be the same as a unique entry on the MPI, match your patient to that entry. If your patient is unique from all others listed, add the patient as a new entry.

Patient MPI/PD Data Inquiry

The Patient MPI/PD Data Inquiry shows you patient information at your site that is useful when dealing with exceptions, Patient Data Reviews, and CMOR Change Requests.

```
This report prints MPI/PD Data for a selected patient.
The information displayed includes the Integration Control
Number (ICN), Coordinating Master of Record (CMOR), MPI/PD Activity
Score, Subscription Control Number, Treating Facility list, CMOR History and
CMOR Change Request History.

The information is pulled from the Patient (#2) file, Treating
Facility List (#391.91) file, and MPIF CMOR Request (#984.9) file.

Patient lookup can be done by Patient Name/SSN or by ICN.
Select PATIENT: `2  SERIOUS,SAM      *SENSITIVE*    *SENSITIVE*     NO
NON-VETERAN (OTHER)

                              ***WARNING***
                          ***RESTRICTED RECORD***


MPI/PD Data for: SERIOUS,SAM  (DFN #X)    PATIENT MARKED SENSITIVE.
Printed Feb 15, 2001@12:19 at ALBANY
================================================================================
SSN    : 111111111                          ICN : 1001111111
Sex    : FEMALE                             CMOR: ALBANY
Claim #: 333333333                          CMOR Activity Score   : 0
Date of Birth: Jan 01, 1942                 Subscription Control #: 116
Date of Death: JUN 1,1997@15:30
Address: 1100 MAIN ST
        BUTLER, MARYLAND 16001
Phone #: 555-1212

Enter RETURN to continue or '^' to exit: <RET>

Treating Facilities:  Station:  DT Last Treated         Event Reason
--------------------  --------  ---------------         ------------
ALBANY                500       JUN 7,1985@15:00        PATIENT ADMISSION
DETROIT               553       none found              none found


Enter RETURN to continue or '^' to exit: <RET>

ICN History:
------------


CMOR History:
--------------
```

```
ALBANY - changed SEP 15,2000@14:12:20
DETROIT - changed OCT 17,2000@10:45:18
500TEMP - changed OCT 17,2000@10:45:26

CMOR Change Request History:
---------------------------
REQUEST #500-38 - SENT OCT 30,2000
   Type of Request: TRANSFER TO DETROIT
   Status         : REQUESTED

Additional DPT Data for: REMOTE,DANIEL N  (DFN #700000)
============================================================
PLACE OF BIRTH [CITY]          :
PLACE OF BIRTH [STATE]         :
FATHER'S NAME                  :
MOTHER'S NAME                  :
MOTHER'S MAIDEN NAME           :
NAME OF PRIMARY NEXT OF KIN    :    REMOTE,RICHARD
NEXT OF KIN PHONE NUMBER       :    555-555-1212
NAME OF DESIGNEE               :
                Enter RETURN to continue or '^' to exit:<RET>

EMERGENCY NAME                 :    REMOTE,EMERGENCY
MARITAL STATUS                 :    DIVORCED
RELIGIOUS PREFERENCE           :    NO PREFERENCE
RACE                           :
PRIMARY ELIGIBILITY CODE       :    NSC
VETERAN (Y/N)?                 :    YES
SERVICE BRANCH [LAST]          :    AIR FORCE
SERVICE NUMBER [LAST]          :    333337777
SERVICE CONNECTED PERCENT      :
SERVICE ENTRY DATE [LAST]      :
SERVICE SEPARATION DATE [LAST] :    JAN 24, 1987
PERIOD OF SERVICE              :    VIETNAM ERA
DATE ENTERED IN PATIENT FILE   :    DEC 19, 2000
SERVICE SEPARATION DATE [LAST] :    JAN 24, 1987
PERIOD OF SERVICE              :    VIETNAM ERA
DATE ENTERED IN PATIENT FILE   :    DEC 19, 2000

Select PATIENT (Use ICN or SSN): <RET>
```

MPI/PD Data Inquiry

This action allows you to query any facility at which a selected patient has been seen, check the query, and display the remote patient data that is returned from that site. The remote data fields retrieved include the Integration Control Number (ICN), the Coordinating Master of Record (CMOR) site, MPI/PD Activity Score, Subscription Control Number, Treating Facility list, CMOR History and CMOR Change Request History

```
MPI/PD EXCEPTION ACTIONS      Nov 28, 2001@15:31          Page:    1 of    1
MPI/PD EXCEPTION HANDLING ACTIONS.

    Exception Data
     Name:   REMOTE,DANIEL
      SSN:   333337777
      DOB:   April 04, 1904
```

```
      DFN:   700000
      ICN:   1099999999
     Date of Death:
     Exception Type:     Required field(s) Date of Birth or Name missing fo
     Exception Date:     Oct 16, 2001
     Exception Status:   NOT PROCESSED

     Exception Notes:


          Enter ?? for more actions
AUD Patient Audit      DO  MPI Display Only Qry     UPD Update to Processed
PI  Patient Inquiry    SPI Single Patient Init      DI  MPI/PD Data Inquiry
HI  Hinq Inquiry       ED  Edit Patient Data        NT  Edit Note
Select Action:Quit//DI MPI/PD Data Inquiry

------------------------------------------------------------------------------
MPI/PD PATIENT DATA ACTIONS   Nov 28, 2001@15:35:10          Page:  1 of  4
MPI/PD PATIENT DATA

 Patient Data

 MPI/PD Data for: REMOTE,DANIEL  (DFN #700000)
 Printed Nov 28, 2001@15:35 at ALBANY
 ============================================================
SSN    : 333337777                          ICN : 1099999999
Sex    : MALE                              CMOR: BATTLE CREEK
Claim #: 333337777                         CMOR Activity Score   : None
Date of Birth: April 04, 1904              Subscription Control #: 63713
Address: 123 COLLEGE TOWN DR
         SACRAMENTO, CALIFORNIA 95826
Phone #: 555-555-1515

Treating Facilities:   Station:    DT Last Treated     Event Reason
--------------------   --------    ---------------     ------------
BATTLE CREEK            515       Jun 10, 1999@13:20   PATIENT DISCHARGE

+         Enter ?? for more actions
SND  Send Remote Query                  DSP  Display Query Data
CHK  Check Remote Query
Select Action:Next Screen//SND Send Remote Query

-> For ICN 1099999999
Query last sent for this ICN on Nov 28, 2001

Select one or more of the following:
1.  (502) ALEXANDRIA
2.  (504) AMARILLO HCS
3.  (515) BATTLE CREEK
4.  (520) BILOXI
5.  (521) BIRMINGHAM
6.  (526) BRONX
7.  (619) CENTRAL ALABAMA HCS
8.  (674) CENTRAL TEXAS HCS
9.  (537) CHICAGO HCS
10. (553) DETROIT
11. (677) EASTERN KANSAS HCS
12. (437) FARGO VAMROC
13. (564) FAYETTEVILLE AR
14. (578) HINES
```

```
15. (ALL)

Select site(s) 1-14 or 15 for all: 3,6,9-14
Remote patient data queries will be sent to:
1.  (515) BATTLE CREEK
2.  (526) BRONX
3.  (537) CHICAGO HCS
4.  (553) DETROIT
5.  (677) EASTERN KANSAS HCS
6.  (437) FARGO VAMROC
7.  (564) FAYETTEVILLE AR
8.  (578) HINES

Do you want to continue? Yes//   YES
   Sending Remote Query to: 437  FARGO VAMROC
   Sending Remote Query to: 515  BATTLE CREEK
   Sending Remote Query to: 526  BRONX
   Sending Remote Query to: 537  CHICAGO HCS
   Sending Remote Query to: 553  DETROIT
   Sending Remote Query to: 564  FAYETTEVILLE AR
   Sending Remote Query to: 578  HINES
   Sending Remote Query to: 677  EASTERN KANSAS HCS
```

CHK – Check Remote Query

```
MPI/PD PATIENT DATA ACTIONS   Nov 28, 2001@15:35:10          Page:  1 of 4
MPI/PD PATIENT DATA

 Patient Data

 MPI/PD Data for: REMOTE,DANIEL  (DFN #700000)
 Printed Nov 28, 2001@15:35 at ALBANY
 ============================================================
SSN    : 333337777                                ICN : 1099999999
Sex    : MALE                                     CMOR: BATTLE CREEK
Claim #: 333337777                                CMOR Activity Score   : None
Date of Birth: April 04, 1904                     Subscription Control #: 63713
Address: 123 COLLEGE TOWN DR
              SACRAMENTO, CALIFORNIA 95826
Phone #: 555-555-1515

Treating Facilities:   Station:    DT Last Treated     Event Reason
--------------------   --------    ---------------     ------------
BATTLE CREEK            515       Jun 10, 1999@13:20   PATIENT DISCHARGE

+         Enter ?? for more actions
SND  Send Remote Query                  DSP  Display Query Data
CHK  Check Remote Query
Select Action:Next Screen// CHK  Check Remote Query

-> For ICN 1099999999

Select one or more of the following:
1.  (515) BATTLE CREEK
2.  (526) BRONX
3.  (537) CHICAGO HCS
4.  (553) DETROIT
```

```
5.  (677) EASTERN KANSAS HCS
6.  (437) FARGO VAMROC
7.  (564) FAYETTEVILLE AR
8.  (578) HINES
9.  (ALL)
Select site(s) 1-8 or 9 for all: 9
     BATTLE CREEK  status: (Response Received)
     BRONX  status: (Response Received)
     CHICAGO HCS  status: (Response Received)
     DETROIT  status: (Response Received)
     EASTERN KANSAS HCS  status: (Response Received)
     FARGO VAMROC  status: (Response Received)
     FAYETTEVILLE AR  status: (Response Received)
     HINES  status: (Response Received)
```

DSP – Display Query Data

```
MPI/PD PATIENT DATA ACTIONS   Nov 28, 2001@15:35:10          Page: 1 of    4
MPI/PD PATIENT DATA

 Patient Data

 MPI/PD Data for: REMOTE,DANIEL  (DFN #700000)
 Printed Nov 28, 2001@15:35 at ALBANY
 ============================================================
SSN    : 333337777                              ICN : 1099999999
Sex    : MALE                                   CMOR: BATTLE CREEK
Claim #: 333337777                              CMOR Activity Score   : None
Date of Birth: April 04, 1904                   Subscription Control #: 63713
Address: 123 COLLEGE TOWN DR
               SACRAMENTO, CALIFORNIA 95826
Phone #: 555-555-1515

Treating Facilities:    Station:  DT Last Treated      Event Reason
--------------------    --------  ---------------      ------------
BATTLE CREEK            515      Jun 10, 1999@13:20    PATIENT DISCHARGE

+         Enter ?? for more actions
SND  Send Remote Query                  DSP  Display Query Data
CHK  Check Remote Query
Select Action:Next Screen//DSP  Display Query Data


Display data returned from remote patient data queries.

-> For ICN 1001169316

Select one or more of the following:
1.  (515) BATTLE CREEK
2.  (526) BRONX
3.  (537) CHICAGO HCS
4.  (553) DETROIT
5.  (677) EASTERN KANSAS HCS
6.  (437) FARGO VAMROC
7.  (564) FAYETTEVILLE AR
8.  (578) HINES
9.  (ALL)
```

```
Select site(s) 1-8 or 9 for all: 1

Enter RETURN to continue or '^' to exit: <RET>



------------------------------------------------------------------------------
MPI/PD REMOTE DATA QUERY      Nov 28, 2001@15:56:31          Page:1 of 3
MPI/PD REMOTE PATIENT DATA

 REMOTE PATIENT DATA
 -> For ICN 1099999999
     BATTLE CREEK  status: (Response Received)

Printed Dec 11, 2001@07:39 at BATTLE CREEK
Enter RETURN to continue or '^' to exit: <RET>

============================================================
SSN    : 333337777                          ICN : 1099999999
Sex    : MALE                               CMOR: BATTLE CREEK
Claim #: 333337777                          CMOR Activity Score   : None
Date of Birth: April 04, 1904               Subscription Control #: 63713
Address: 123 COLLEGE TOWN DR
               SACRAMENTO, CALIFORNIA 95826
Phone #: 555-555-1515
Treating Facilities:    Station:    DT Last Treated       Event Reason
--------------------    --------    ---------------       ------------
BATTLE CREEK            515         Jun 10, 1999@13:20   PATIENT DISCHARGE
BRONX                   526         Aug 13, 1998@9:45    PATIENT DISCHARGE
CHICAGO HCS             537         Sept 11, 1999@13:00  PATIENT DISCHARGE

Select Action:Next Screen//  <RET>
```

Resolving the Exceptions

1. Required field(s) Date of Birth or Name missing for Patient sent to MPI

This exception occurs during the initialization of the MPI with your local Patient file if the required fields Name and Date of Birth have not been populated. These required fields must have values before patients can be assigned ICNs.

Resolution:

To resolve this exception first correct any missing fields identified. Use the Edit Patient Data action to update the Name, Social Security Number, Date of Birth and Date of Death fields. Use the Single Patient Initialization to MPI action to initialize this patient to the MPI.

```
MPI/PD EXCEPTION ACTIONS        Jan 14, 2000 11:12:11          Page:  1 of  1
MPI/PD EXCEPTION HANDLING ACTIONS.

   Exception Data
 1   Name:   MERRY,MARY
 2    SSN:   333333333
 3    DOB:   AUG 22, 1941
 4    DFN:   3
```

```
 5    ICN:   1003333333
 6    Date of Death:
 7   Exception Type:     Required Field(s) Date of Birth
 8   Exception Date:     Nov 02, 1999
    Exception Status:   NOT PROCESSED


----------Enter ?? for more actions-----------------------------------------
AUD  Patient Audit                      SPI  Single Patient Init to MPI
PI   Patient Inquiry                    ED   Edit Patient Data
HI   Hinq Inquiry                       UPD  Update Status to Processed
DO   MPI Display Only Query             TF   Treating Facility Inquiry
Select Action:Quit// ED   Edit Patient Data
NAME: MERRY,MARY// <RET>
DATE OF BIRTH: 07/22/1941// 08/22/1941
SOCIAL SECURITY NUMBER: 33333333// 333333333
DATE OF DEATH: <RET>


MPI/PD EXCEPTION ACTIONS        Jan 14, 2000 11:12:11          Page:  1 of  1
MPI/PD EXCEPTION HANDLING ACTIONS.

----Exception Data------------------------------------------------------------
1   Name:    MERRY,MARY
 2    SSN:   333333333
 3    DOB:   AUG 22,1941
 4    DFN:   3
 5    ICN:   1003333333
 6    Date of Death:
 7   Exception Type:     Required Field(s) Date of Birth
 8   Exception Date:     Nov 02, 1999
    Exception Status:   NOT PROCESSED


----------Enter ?? for more actions-----------------------------------------
AUD  Patient Audit                      SPI  Single Patient Init to MPI
PI   Patient Inquiry                    ED   Edit Patient Data
HI   Hinq Inquiry                       UPD  Update Status to Processed
DO   MPI Display Only Query             TF   Treating Facility Inquiry
Select Action:Quit// SPI   Single Patient Init to MPI

Attempting to connect to the Master Patient Index in Austin...

Patient was not found in the MPI...

Adding Patient to Master Patient Index...


Enter RETURN to continue or '^' to exit: <RET>
```

The screen is then updated with the new ICN and the status is changed to PROCESSED.

```
MPI/PD EXCEPTION ACTIONS        Jan 14, 2000 11:12:11          Page:  1 of  1
MPI/PD EXCEPTION HANDLING ACTIONS.

----Exception Data------------------------------------------------------------
```

```
1   Name:    MERRY,MARY
 2    SSN:   333333333
 3    DOB:   AUG 22,1941
 4    DFN:   3
 5    ICN:   1003333333
 6    Date of Death:
 7   Exception Type:     Required Field(s) Date of Birth
 8   Exception Date:     Nov 02, 1999
    Exception Status:   PROCESSED


----------Enter ?? for more actions-----------------------------------------
AUD  Patient Audit                      SPI  Single Patient Init to MPI
PI   Patient Inquiry                    ED   Edit Patient Data
HI   Hinq Inquiry                       UPD  Update Status to Processed
DO   MPI Display Only Query             TF   Treating Facility Inquiry
Select Action:Quit// <RET>
```

2. SSN Match Failed

This exception occurs when a discrepancy exists in a patient's SSN between your local Patient file and the MPI. The facility's local Patient file may have a pseudo SSN for a patient, while the MPI does **not** have one at all (i.e., the field is not populated in the MPI).

This exception can also occur when an SSN is populated in both your local Patient file and the MPI for the same patient but the values are different (e.g., the site has a pseudo SSN and the MPI has a "national" SSN for the same patient). Based on a review by Patient Administration personnel, it can be decided if the SSN should be updated in your local Patient file (#2).

Another example of an event that would cause this exception is a lost connection to the MPI when the patient is being added to the MPI. This would cause the patient to be assigned a national Internal Control Number (ICN) on the MPI but have a local ICN assigned at your site. If a user then updates the patient's Social Security Number, the MPI finds a potential match but the ICN is different than on your system.

Resolution:

First, determine if the SSN you have is correct. If not, use the Edit Patient Data action to correct it. Once corrected (or if it is already correct), use the Single Patient Initialization to MPI action to initialize this patient to the MPI. If the SSN matches now, the patient will automatically be matched up with the entry on the MPI.

If the SSN still does not match, you will get a list of one patient or more to pick a match from, or be allowed to add this patient to the MPI. If you believe that these two patients are the same, select the person from the list. You will be asked if you are sure since the SSN doesn't match. If you have verified that the SSN you have for this patient is correct, send a message to the CMOR noting what you have found so they can correct their entry. Once the CMOR is corrected, the resulting messaging will update the MPI and treating facilities.

3. Name Doesn't Match

This exception is used to inform Patient Administration personnel that the Name returned from the MPI does not match the entry in your local Patient file (#2). This message should be forwarded to the Patient

Administration Coordinator at your facility to see if this patient's name should be updated in the local Patient file (#2).

Another example of an event that would cause this exception would be a lost connection to the MPI when the patient is being added to the MPI. This would cause the patient to be assigned a national Integration Control Number (ICN) on the MPI but have a local ICN assigned at your site. If a user then updates the Name, the MPI finds a potential match but the ICN is different from that on your system.

Resolution:

Use the same resolution as with SSN, substituting Name for SSN.

4. Death Entry on MPI not in V*IST*A

This exception message occurs when the Date of Death field is populated in the MPI for a particular patient. However, that same field is **not** populated in your local Patient file (#2).

Resolution:

The resolution for all three Death Entry Exceptions is the same. The first step is to use the Patient Inquiry to identify the patient's CMOR site. If you are the CMOR, use the MPI Display Only Query to identify that the MPI data and your facility data match. If they do match, no action is necessary. If you are not the CMOR, do a HINQ inquiry to see if the patient has a date of death there and contact the CMOR to resolve the issue. If you are the CMOR, and the data has not been updated on the MPI, you will want to trigger an A08 message to the MPI. This can be done by re-entering the Name or DOB (or any of the other fields that MPI/PD monitors, including date of death). Use the Update Status to Processed action when you have resolved the exception. This will take the exception off the list.

5. Death Entry on V*IST*A not in MPI

This exception message occurs when the Date of Death field is populated in your local Patient file (#2) for this patient. However, that same field is **not** populated in the MPI.

6. Death Entries on MPI and V*IST*A DO NOT Match

This exception occurs when the MPI and your local Patient file have different dates of death for the same patient.

7. Potential Matches Returned

During the initialization of your site to the MPI you are likely to receive many of these exceptions. It is very important for the sharing of information between sites that they be resolved as quickly as possible. After this first large batch of potential matches has been resolved, you will still receive occasional exceptions of this type that need to be resolved.

During the ListManager display when presented with a list of potential matches, the following message may also be displayed to the user if this ICN is already in use by another patient.

```
      You are attempting to assign an ICN that has already been assigned
      to another patient in your Patient file.
      An Exception will be recorded noting that these 2 patients
      need to be reviewed to determine if they are a duplicate
```

Resolution:
Once you have determined either the correct match or that the patient is indeed new to the MPI, use the Single Patient Initialization to MPI action to resolve the exception.

Exception Messages not Included on the Exception Handling Option

1. Multiple ICNs

This message is intended for Patient Administration personnel who are responsible for resolving potential duplicates in the Patient file (#2). The message indicates that the MPI identified both of these patients as being the same person. However, MPI/PD Business Rules prevent two or more patients in the same Patient file from having the same ICN.

```
Subj: MPI/PD Exception: Multiple ICNs  [#707] 21 Sep 99 02:03  1 Line
From: HL7 Msg # 2001179104  In 'IN' basket. Page 1  *New*
---------------------------------------------------------------------

Multiple ICNs: Patient dfn ###### returned ICN 1000000000 that is already in
use for Patient dfn ######  Checkout pair to determine if a Duplicate.

Select MESSAGE Action: DELETE (from IN basket)// <RET>
```

Resolution:

To resolve this, it is necessary to look up both of the patients whose DFNs are provided and determine if they are a duplicate pair. If it is a duplicate pair, determine which patient should remain as the "active" entry. The "wrong" patient should be ZZ'd. NOTE: MPIF*1.0*9 automatically inactivates patients that are ZZ'd from the MPI. If the patient that was ZZ'd was the entry that had the ICN already or has a local ICN, use the Inactivate Patient from MPI option to remove the ICN. To determine what ICN a patient has, use the Treating Facility Inquiry option. If you are unable to inactivate the patient because you are not the CMOR, log a NOIS and ask for assistance resolving this patient. If the "active" patient entry does not have a national ICN, use the Single Patient Initialization option to get one assigned.

(For more information on MPI/PDI Business Rules, see Appendix A – MPI/PD Business Rules in any MPI/PD manual.)

2. Attempt to Inactivate Shared Patient

This exception results if subscribers exist for a patient (or ICN) you tried to remove from the MPI using the Inactivate Patient from MPI option. You cannot remove this patient from the MPI.

3. Cannot Merge Duplicate Pair

This exception is generated when using the Duplicate Record Merge software if a pair goes through the merge with both records having national ICNs.

Resolution

To identify whether or not the ICN is a national number, look at the first three digits. If the first three digits are equal to your site station number it is a local ICN, otherwise it is a national ICN.

To resolve a pair with two national ICNs assigned, first determine which record will be the 'FROM' record for the merge. Inactivate that record from the MPI using the Inactivate Patient from MPI option on the Master Patient Index Menu.

If the record is shared with other sites, it cannot be inactivated. Log a NOIS for the MPI/PD team to resolve. When logging a NOIS, include the ICNs and indicate which record is the "FROM" record in the information given.

Exception Messages for MPIF Exceptions Handler

There are a number of Exception messages that are technical in nature, involving problems with HL7 messages or ones for which a NOIS needs be logged. They are sent to the MPIF EXCEPTIONS Handler on the Austin MPI for resolution by MPI/PD team members or by NVS.

1. Missing/Unable to get Logical Link

This message is used if a logical link could not be found for an outbound message. The team will verify that HL*1.6*39 is successfully installed and, that one and only one entry in the HL Logical Link (#870) file has the Institution field populated for this site. It should correspond to the VA*, where the * is the three letter abbreviation for the Institution from FORUM.

2. Exception Message: Patient DFN Failed

The Patient DFN Failed message indicates that the inbound HL7 message could not identify the patient using the ICN passed. This could be caused by a lost connection to the MPI when the patient is being added to the MPI. This causes the patient to be assigned a national Internal Control Number (ICN) on the MPI but have a local ICN assigned at your site. This could also be a result of a problem with the subscription or treating facility list at another facility.

The message also can result if the person who runs the MPIF LOC/MIS ICN RES background job has a record that is being updated. This is due to a security issue that does not allow a user to edit his/her own file.

```
Subj: MPI/PD Exception: Patient DFN Failed  [#115821] 17 Sep 99 19:04  1 Line
From: HL7 Msg#116215436  In 'IN' basket. Page 1
---------------------------------------------------------------------
Patient DFN Failed: Msg#5462795 Bad DFN, -1^ICN NOT IN DATABASE, for
XXXXXX,XXXXXX (ICN#1000000000)

See the Exception Handling Document on the MPI/PD Web Site.
```

```
Select MESSAGE Action: IGNORE (in IN basket)// <RET>
```

Resolution:

This message is sent to the MPI/PD group for review by MPI/PD team members or NVS. The site may then be asked to help resolve this. Using the MPI Display Only Query option on the Master Patient Index Menu (shown below), verify that the patient is a match. If it is a match use the Single Patient Initialization to MPI option to initialize this patient to the MPI. The message number noted in the text of the message gives a clue as to who sent the message that resulted in this exception. The first three numbers may indicate the sites station number if they have setup the HL7 communication parameters. Logging the NOIS ASAP will also give us the message to look at if needed. The HL7 purge may delete the message after 7 days, which could make identifying the site that sent the message extremely difficult.

If the problem was that the site that received this Exception is thought to be the CMOR, but this site does not have this ICN yet, the site would be asked, as noted above, to establish the ICN for this patient. The site where the original message was generated would be asked to re-generate an A08 Patient Update message which will trigger an A08 Update Message, as well as Treating Facility and Subscription "Add Me" messages. This will correct the "hole" created when the exception message was generated at the other site. Re-generating the A08 message can be done by retyping in the name, DOB, or SSN, or any of the other fields MPI/PD monitors.

```
Select MPI/PD Patient Admin Coordinator Menu Option: MPI  Master Patient
Index Menu


         Single Patient Initialization to MPI
         Display Only Query
         Inactivate Patient from MPI

Select Master Patient Index Menu Option: DISPlay Only Query
Is Patient in the PATIENT file? ? YES// <RET>
Patient Name XXXXXX,XXXXXX     XXXXXX,XXXXXX      11-22-33    013245678
         YES     SC VETERAN           MT/NA/
 Enrollment Priority: GROUP 2    Category: ENROLLED      End Date:


Attempting to connect to the Master Patient Index in Austin...

Found One Match


Name: XXXXXX,XXXXXX
SSN: 012345678           Gender: M
Integration Control Number (ICN): 1000000000
Date of Birth: 11-22-1933     Date of Death:
Place of Birth: ANYTOWN, US
CMOR: NASHVILLE

      Single Patient Initialization to MPI
      Display Only Query
      Inactivate Patient from MPI

Select Master Patient Index Menu Option: Single Patient Initialization to MPI
```

```
Select PATIENT NAME: ` XXXXXX,XXXXXX XXXXXX,XXXXXX 11-22-33     012345678
YES
    ALLIED VETERAN
 Enrollment Priority:           Category: NOT ENROLLED  End Date:


Attempting to connect to the Master Patient Index in Austin...

Found Patient XXXXXX,XXXXXX in MPI, updating ICN and CMOR...
```

3. CMOR Lookup Failed

```
Subj: MPI/PD Exception: CMOR Lookup Failed  [#1615] 24 Mar 99 14:33  1 Line
From: HL7 Msg #323423 in 'IN' basket. Page 1  **NEW**
---------------------------------------------------------------------------

CMOR Lookup Failed: Mismatched CMOR, 0/546 for VETERAN,JOHN A
(ICN#1000111111)


Select MESSAGE Action: DELETE (from IN basket)// <RET>
```

Resolution:

If the CMORs are different [if neither is zero (0)], then the correct CMOR will be determined. The correct Coordinating Master of Record field will then be updated in the Patient file for the patient.

If one of the CMOR values is zero (0), then the Institution file (#4) will be checked for the other station number listed. After the correct Institution is found or created, the Coordinating Master of Record field will be updated for this patient.

If your site is the CMOR according to the MPI and your entry for this patient, the other site will be updated with the correct CMOR.

4. TF Update Failed in Pivot file

This message is fired by a failed attempt made to update the ADT/HL7 Pivot file (#391.71) with a Treating Facility message for the given DFN and Station Number. The message goes to the MPI/PDgroup and will be resolved by the MPI/PD team or NVS.

```
Subj: MPI/PD Exception: TF Update Failed in Pivot file  [#11485766] 24 Oct 98
11:00  1 Line
From: HL7 Msg#102630  in 'IN' basket. Page 1
---------------------------------------------------------------------------

TF Update Failed in Pivot file: DFN= 22222  Treating Facility= 573


Select MESSAGE Action: DELETE (from IN basket)// <RET>
```

Sample Exception Messages: Problems with HL7

There are a number of exception messages that involve problems with HL7 messages or ones that a NOIS would be required to be logged. These are sent to the MPI Exception Handler on the Austin MPI for resolution by the MPI/PD team members or by NVS.

1. Missing HL7 Segments — Problem with MPI (Austin)

The exception message informs you that one of the following segments is missing:

- BHS Segment,
- MSH Segment,
- QAK Segment,
- MSA Segment,
- RDF Segment, or
- RDT Segment.

These are problems with the HL7 messages coming in from the MPI. The NVS Help Desk should be contacted, and the problem reported as being on the MPI (Austin) side.

2. "Could Not Create VTQ" — Problem with MPI (V*IST*A)

If the MPI/PD exception message informs you that it "Could Not Create VTQ", this problem should be reported to NVS Help Desk as a problem on the MPI (**V*IST*A**) side.

3. "Application Reject Error" or "Application Error" — Missing HL7 Application

If the message informs you of an "Application Reject Error" or "Application Error," these problems may point to a missing HL7 Application. Contact the NVS Help Desk for assistance.

4. Receiving or Sending Site Not Present — Facility Name Field Not Populated

If a message is received stating that the Receiving or Sending Site is not present, this may indicate that the Facility Name field in the HL7 Application file is not populated for the MPI and/or MPI/PD applications. This should be verified and corrected. Once corrected, or if this was **not** found to be the problem, contact the NVS Help Desk for assistance.

Contact the National V*IST*A Support (NVS) Help Desk

If any other MPI/PD exception messages are received that are **not** documented in this appendix, contact the NVS Help Desk for assistance.

Index

A04 Broadcast Process 67
A08 Broadcast Process 68
API calls 39
Archiving 37
Auditing 7
Bulletins 9
Calculate Individual Patient CMOR Score 16
Capacity Management 6
CIRN Messaging Components 25
CIRN Messaging Support 25, 28
CIRN Patient Demographics 27
CIRN Patient Demographics Files 25
CMOR Score Calculation Status 17
Contingency Planning 52
Coordinating Master of Record (CMOR) 1, 2
Coordinating Master of Record (CMOR) Menu 14
DG*5.3*231 ..... 26, 29
Duplicate Record by CMOR Score 17
Duplicate Record Statistics 18
Exception Handling 39, 79
Files 23
Files with Security Access 53
Global Information 8
Halt MPI/PD Event Queue 14
Hardware Requirements 6
HL7 58
ICN 1, 59
Integration Agreements 45
Local/Missing ICN Resolution Background Job 33
Master Patient Index 1
Master Patient Index - VISTA 25, 28, 41
Master Patient Index (MPI) 2
Master Patient Index (MPI-Austin) 59
Menu Assignment 32
MPI/PD Business Rules 63
MPI/PD Data Inquiry 88
MPI/PD Event Queue 75
MPI/PD Event Queue Manager 13
MPI/PD Exception Purge 33
MPI/PD HL7 Diagnostic Menu 34
MPI/PD HL7 Exception Notifier 33
MPI/PD Master Menu 31
Number Space 23
Patient File Initialization to MPI 19
Purging 37
Registration Process 65

Remote systems 51
RG CIRN Demographic Issues mail group 83
Routines 27
Security Keys 53
Shared Patient 60
Site Parameters 11
Space requirements 7
Start MPI/PD Event Queue 13
Start/Restart CMOR Score Calculation option 16
Stop CMOR Score Calculation 16
Stop/Send/Suspend MPI/PD Messages 33, 52
Subscription 61
Synchronized Patient Data 61
TCP/IP Set-up 71
Treating Facility 1, 61
VTQ Query process 69